

RECEIVED
CENTRAL FAX CENTER
MAR 14 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No :	10/815,727	Confirmation No. :	9476
Applicant :	John D. Brennan et al.		
Filed :	April 2, 2004		
Title :	METHOD OF IMMOBILIZING MEMBRANE-ASSOCIATED MOLECULES		
TC/J.A.U. :	1641		
Examiner :	Unsu Jung		
Docket No. :	3244-127 (Formerly 571-933)		
Customer No:	001059		

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

DECLARATION UNDER 37 CFR §1.132

I, Michael A. Brook, a citizen of Canada, and resident of Ancaster, Ontario, Canada, declare that the following facts are within my knowledge and are true.

1. I reside at 165 Charterhouse Crescent, Ancaster, Ontario, Canada L9G 4M4.
2. I currently am a Professor in the Department of Chemistry, McMaster University, 1280 Main St. W., Hamilton, Ontario, Canada, L8S 4M1.
3. I have been working in the area of organic, polymer and materials synthesis utilizing silicon chemistry since 1980. My curriculum vitae is attached to this Declaration as Exhibit A.

4. I am an inventor, along with Zheng Zhang, Yang Chen, Jorge Cruz-Aguado, Richard J. Hodgson, Dina Tleugabulova and John D. Brennan, of the subject matter as claimed in U.S. Patent Application No. 10/814,123 filed April 4, 2004 (hereafter "the Application").

5. I have read and understood the disclosure and claims of the Application.

6. I have read and understood the Office Action that issued on the Application on May 17, 2006. The Examiner is of the view that claims 1-5, 8-10, 38, 40-45 and 47-48 are obvious over Nakanishi688 (US 5,009,688) in view of Gill (J. Am. Chem. Soc., (1998), 120, 8587-8598), claims 1-5, 8-10, 40-45, 47-52, 54-55 and 56 are obvious over Nakanishi875 (US 5,624,875) in view of Gill, claim 38 is obvious over Nakanishi875 in view of Gill and as evidenced by Barkin (US 3,374,103) and claims 53 and 57-61 are obvious over Nakanishi875 in view of Gill.

7. I have read and understood the claims that are attached to this Declaration as Exhibit B that I understand the Applicants are filing in response to the Office Action dated May 17, 2006. My comments below are based on the amended claims in Exhibit B (hereinafter "the amended claims").

8. The Applicants have developed a biomolecule compatible method of preparing bimodal siliceous materials having a meso/macroporous structure that is suitable for chromatographic applications by combining polyol-modified silane precursors with one or more water soluble polymers under conditions where a phase separation occurs before gelation, wherein said conditions comprise combining polyol-modified silane precursors with one or more water soluble polymers at a pH in the range of about 4 to about 11.5.

9. Nakanishi688 describes methods of preparing siliceous materials with controlled pore size by combining alkoxysilanes, or oligomers thereof, and a

water soluble polymer, under conditions where phase separation occurs before gelation. Nakanishi688 does not teach that the resulting materials are bimodal, i.e. that they have a meso/macroporous structure. The materials prepared using the method taught in Nakanishi688 are only described as "porous".

10. Nakanishi875 describes methods of preparing siliceous materials with a bimodal meso/macroporous pore structure by combining alkoxysilanes, or oligomers thereof, and a water soluble polymer, under conditions where phase separation occurs at least concurrently with gelation, followed by treatment of the resulting gel with a matrix dissolving agent. Nakanishi875 does not teach that bimodal (i.e. meso/macroporous) silica materials can be obtained by hydrolyzing and condensing an alkoxysilane in the presence of a water soluble polymer. The bimodal structure is obtained only after treatment of the gel with a matrix dissolving agent.

11. Gill describes methods of entrapping biomolecules in siliceous materials prepared from oligomeric polyol silicates such as polyglyceryl silicate (PGS). PGS was prepared by the partial hydrolysis and condensation of tetramethyl orthosilicate (TMOS) to poly(methyl silicate) (PMS), followed by transesterification with glycerol, in a one pot reaction catalyzed by hydrochloric acid or poly(antimony(III) ethylene glycoide). Specifically, at page 8595-8596, Gill describes the preparation of methyl/ethyl ester and polyol ester precursors as follows:

Poly(methyl silicate) (PMS) and poly(glyceryl silicate) (PGS): TEOS (0.48 mol) was mixed with ethanol (50 mL), and hydrochloric acid (10.4 mL of 0.25 M) was added over 30 min with vigorous stirring; then the mixture was heated to 70 °C for 15 h. Rotary evaporation at 35 °C provided PMS of composition $\text{SiO}_{1.1-1.2}(\text{OMe})_{1.6-1.8}$ as a clear, viscous liquid. PGS was obtained by adding glycerol (0.38 mol) to the reaction mixture over 1 h, heating to 50 °C, and stirring for a further 40 h. [...] FAB-MS indicated that the product consisted mostly of glyceryl-bridged linear oligomeric polysilicates of DP 5-9.

Various glyceryl silicates ("SiGlc₂₋₄") and poly(glyceryl silicates) ("SiO_{0.5-1.5}-Glc_{0.5-2}") were prepared by this method.

Gill utilizes Bronsted (HCl) or Lewis (poly(antimony(III) ethylene glycoide)) acid catalysts and water to prepare PGS. Such conditions are ideal for alkoxy silane hydrolysis and, ultimately, condensation to prepare siloxane oligomers and polymers. Gill notes that DP 5-09 oligomers are formed. Thus, Gill prepares mixed alkoxy / siloxy species that he calls PGS. It is not possible to prepare pure alkoxy silanes in a medium containing water, such as hydrochloric acid, particularly when acidic catalysts are present (see C. J. Brinker and G. W. Scherer, **Sol-Gel Science - The Physics and Chemistry of Sol-Gel Processing**, New York, Academic Press, 1990 – p. 116 "Tetraalkoxysilanes, organotrialkoxysilanes, and diorganodialkoxysilanes hydrolyze upon exposure to water vapor"; "Hydrolysis is most rapid and complete when catalysts are employed."; "Many authors report that mineral acids are more effective catalysts...").

12. Diglyceryl silane (DGS) is an example of a polyol-modified silane precursor.

13. We have performed direct side-by-side comparison hydrolysis and condensation reactions of DGS, PGS and TEOS in the presence of polyethylene oxide (PEO, 10K MW) with or without added glycerol. Reactions were performed at pH 5.6 and at pH 11 which represent the ends of the pH ranges that are claimed in the application. The reaction conditions, with the exception of pH, are commensurate in scope with those taught in Nakanishi688 or Nakanishi875 in view of Gill. Experimental details and scanning electron microscopy (SEM) images of the resulting materials are presented as Exhibit C.

14. The results provided in Exhibit C show that the DGS samples 1, 5, 6 exhibit macroporosity and (not shown) mesoporosity. The morphology of the structures varies, but is in all cases open. Sample 2 is not macroporous. Under

these conditions, the gelation occurred prior to phase separation. In order to slow down gelation, one equivalent of glycerol was added while other conditions were kept constant. The retarded hydrolysis rate led to phase separation prior to gelation and a macroporous structure was achieved (sample 6). To more broadly show the effect of changing the rate, 1 equivalent of glycerol was added to all of DGS, TEOS and PGS reactions (samples 5, 6, 7, 8 11 and 12). As can be clearly seen, under these conditions only DGS at either pH 5.5 or pH 11 led to macroporous structures, while TEOS and PGS did not. This demonstrates the significance of the pH ranges claimed in the application.

The SEM pictures of TEOS derived silica show that macroporous structures are not formed: with glycerol present, a 2 phase system results that does not cure within 1 day.

PGS does not lead to macroporous silica, irrespective of the presence of glycerol.

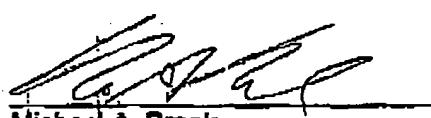
15. The experimental results show that DGS, used in the methods claimed by the present Applicants is fundamentally different from the material(s) prepared in Gill, Nakanishi688 and Nakanishi875. Specifically, in the presence of PEO (10K MW), DGS was the only precursor that provided macroporous material. Accordingly, DGS is not equivalent to PGS or TEOS. Further, in the presence of glycerol and PEO (10K MW) DGS was again, the only precursor that provided macroporous material. Accordingly DGS is not equivalent to PGS plus glycerol or TEOS plus glycerol.

16. In summary, I believe that Applicants are entitled to claim a method of preparing bimodal siliceous material by combining polyol-modified silanes with one or more water soluble polymers under conditions where a phase separation occurs before gelation as specified in the amended claims. I am of the opinion that the amended claims are not obvious in view of Gill in combination with

Nakanishi688 or Nakanish875, since the substitution of DGS for the alkoxy silanes used in both of the Nakanishi patents would not be expected to provide the bimodal macro/mesoporous siliceous material that is obtained using the method of the present invention. This is substantiated by the fact that experiments performed in our own labs have demonstrated that PGS, when combined with a water soluble polymer in the method as claimed in the Applicants' application does not provide bimodal meso/macroporous siliceous material.

17. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statement and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the Application or patent resulting therefrom.

OCT 16, 2006
Date


Michael A. Brook

The Sol-Gel Process

- (1) Hydrolysis
 $\text{Si(OEt}_4\text{)}_4 + \text{H}_2\text{O} + \text{H}^+ \longrightarrow \text{Si(OEt}_3\text{OH})_4 - \text{EtOH}$
- (2) Condensation
 $2 \text{Si(OEt}_3\text{OH})_4 \longrightarrow [\text{Et}_3\text{O}^+ \text{Si-O-Si(OEt}_3\text{)}_3]^+$
- (3) Polycondensation
 $n[\text{Et}_3\text{O}^+ \text{Si-O-Si(OEt}_3\text{)}_3]^+ \longrightarrow (\text{Si-O-Si-O})_n$

Monitoring Ion Mobility by Fluorescence

Properties of Gramicidin

- Membrane spanning hydrophobic polypeptide
- Lanes out on selective transport trans-channels
- Typically forms a lipid bilayer film with exterior hydrophilic heads, and interior diametric like bilayers for passage of small molecules
- Gramicidin has a high degree of conformational flexibility
- Structure of Gramicidin is reiterated by lipid bilayer
- Dimer or formation of trimers

Tryptophan Fluorescence

- Gramicidin contains four tryptophan residues that are very sensitive to movement to a more non-polar environment
- Blue shift in fluorescence emission is seen with movement to a more non-polar environment
- Due to highly turbid and scattering liposomes samples accurate spectra are difficult to obtain. Preliminary results show red-shift in the emission spectrum.

Advantage of the Sol-Gel process

Vs. Surface Immobilization

Surface Immobilization technique does not mimic internal liposomal environment.

Sol-gel immobilization technique mimics internal environment.

Conclusions

- Gramicidin protein Gramicidin has been successfully entrapped in sol-gel derived materials, which is demonstrated by Salinian O membrane potential assay
- Physical and structural properties of Gramicidin still unclear from preliminary intrinsic tryptophan emission spectra

Future Work and Direction

- Investigation of peptide conformation by circular dichroism
- Study of known inhibitors of ion channel formation and its function
- Monitor intrinsic tryptophan fluorescence lifetimes of Gramicidin in sol-gel
- External spin labeling method to other membrane receptors and enzymes

- 1 -

EXHIBIT A

Curriculum Vitae

Michael Adrian Brook

Address

Home:

165 Charterhouse Cres.
Ancaster, Ontario
Canada, L9G 4M4.
(905) 648-7361

Business:

Department of Chemistry
McMaster University, ABB 459
1280 Main St. W.
Hamilton, Ontario
Canada, L8S 4M1.
(905) 525-9140 ext. 23483
FAX (905)-522-2509
E-mail: mabrook@mcmaster.ca
Web: www.chemistry.mcmaster.ca/silicone

Personal Data

Date of Birth: November 2, 1955
Country of Birth: Canada
Citizenship: Canadian
Marital Status: Married, 3 children.

Education

ETH-Zürich (Swiss Federal Institute of Technology) 1984-85
Postdoctoral Fellowship, Supervisor: Prof. Dr. D. Seebach

McGill University, Ph.D. (Dean's Honour List) 1983
Supervisor: Prof. T.H. Chan (conferred 1984)
Thesis: *The Trimethylsilyl Group in Organic Synthesis*

University of Toronto, Honours B.Sc. 1978
Supervisor: Prof. M. Thompson, 4th year project
Thesis: *The Oxidation Products of 8-hydroxyquinoline with Ceric Ammonium Nitrate*

University of Sussex, UK, Chemistry, first year 1974

- 2 -

Current Status at McMaster

Professor of Chemistry, tenured.
 Associate Member, Department of Pathology and Molecular Medicine (1993-2002).
 Associate Member, Chemical Engineering (1999-2004).

Professional Organizations

Member, Chemical Institute of Canada
 Member, American Chemical Society
 Member, McMaster Institute for Polymer Production Technology
 Member, Brockhouse Institute for Materials Research (McMaster)

Employment History

McMaster University, Professor (Promoted July 1997)	1997-
present	
McMaster University, Associate Professor (Promoted July 1991)	1991-97
McMaster University, Assistant Professor (Tenured July 1990)	1985-91
Prof. W.H. Rapson, University of Toronto	1979
<i>Determination of potential mutagenic products of the aqueous chlorination of wood pulp.</i>	
Dr. O. Merecz, Ontario Ministry of the Environment	1978,
1977	
<i>Analysis of polycyclic aromatic hydrocarbons by capillary GC and HPLC.</i>	
Mr. T. Segeren, Chevron Asphalt, Calgary	1976
<i>Analysis of aqueous asphalt emulsions.</i>	

Consultancies

Silicone Injection Molding Company, name withheld	2006
Biomaterials Company, name withheld	2005
Jenner and Block, Chicago	2005
Innovalight, St. Paul, MN	2004-
2005	
Inamed CA	2003-
2005	
Digital Persona	2004
Vision Company, name withheld	2003-
2004	
MDS-Sciex, Toronto	2003-
2004	
Dow Corning Corporation, Midland MI	2003-
2004	
Federal Government of Canada (Justice, Health)	2003,
2004	
Kent and McBride, Philadelphia	2003
GenoRx, CA	2003
Strategic Analysis International, Philadelphia	2003

- 3 -

Surtec, Valparaiso, ILL	2003
Eisenmann, Crystal Lake ILL	2002
Shook, Hardy and Bacon, Kansas City	2001-
2002	1993-
Teltech (now Intota/Sopheon)	2001
Stroock and Stroock and Lavan, New York	2001
Genencor, Palo Alto	2001
Sasol, Austin TX	2000
Arkmount Systems, Toronto	2000
Xanthon, NC	2000
Gillette, Boston	2000
Shapiro, St. Paul MN	2000
Hatch and Associates, Shanghai	2000
General Electric, Waterford NY	2000
CalEnergy, Calipatria CA	2000
Ballard Power Inc., Vancouver	1990-
Dow Corning Corporation, Midland MI	
2000	1997-
Jones Rogers, Toronto	
2000	1999-
Kent and McBride, Philadelphia	
2001, 2003	1998-
Trojan Technologies, London ON	
2000	1999
CK Witco, Sistersville WV	1999
FEI Technologies, Princeton NJ	1997-98
Unilever, Port Sunlight UK	1998
Tel-Tek/Norsk Hydro, Porsgrunn Norway	1997
Strook and Strook and Lavan, NYC	1997
Eastman Chemical, Kingsport, Tennessee	1996
Albemarle Corp., Baton Rouge Louisiana	1996
Delphax, Mississauga ON	1996-97
Magnifoam, Barrie ON	1995
Lotek, Markham, ON	1995
Price Waterhouse, (for AMT), Toronto	1995
IVACS	1994
Itron, Waseca MN	1993
Trace Sciences	1991-92
Abitibi Price, Canada	1990
S&S Productions	1988
C.I.L. (now I.C.I. Canada)	1988-90
Galen Pharma (now Biovail, Trimel Lifesciences)	

- 4 -

Scholarly and Professional Activities

ACS Award Committee, Member (specific award is confidential)	2005-
2010	
<i>Silicon Chemistry</i> (a journal), Regional Editor, The Americas, Innolight, St. Paul, MN, Scientific Advisory Board, Member	2000-
5th Polymerization in Dispersed Media, Lyon France (2004) Member, International Organizing Committee	2004-
Scientific Advisory Board, Ian Wark Research Institute, Member, University of South Australia	2003-4
The 3rd International Workshop on Organosilicon Polymers (2003) Member, Organizing Committee, June 23-25, 2003; Rensselaer Polytechnic Institute, Troy, NY	2002-4
Formulation Days: Silicones and Fluorocarbons, Lyon France, Dec. 9, 10, 2002	2002-3
2002	
(Journées formulation silicones et fluorés), Member, Organizing Committee Perspectives on Silicon, Ian Wark Research Institute, Adelaide, July 15-19, 2002.	2002
Member, Advisory Board, University of South Australia	2002
Visiting Professor, Ian Wark Research Institute, University of South Australia	2002
Visiting Professor, Unité Mixte CNRS BioMérieux Lyon, France	2000
Visiting Scientist, Trojan Technologies, London Ontario	1999
Can. J. Chem. Special Issue in honour of Adrian Brook, (pub. Nov. 2000), Guest co-editor	1998-
2000	
XXX Organosilicon Symposium, Co-Chair	1997
Visiting Professor, Université de Bordeaux, Bordeaux, France	1996
Visiting Professor, Université Paul Sabatier, Toulouse, France	1996
Visiting Professor, University of Amsterdam	1992-93
74 th CIC Chemistry Conference	
Program Co-Chair	1990-91
Abstract Editor	1990-91
Symposium Organizer	1990-91
Conference Chairman, Southwestern Ontario Undergraduate Chemistry Conference	1987
Journal Referee (in order of frequency)	
1) Silicon Chemistry	
2) Journal of the American Chemical Society	
3) Langmuir	
4) Canadian Journal of Chemistry	
5) Chemistry of Materials	
6) Biomaterials	
7) Organometallics	
8) Organic Letters	
9) Applied Surface Science	
10) Journal of Polymer Science Part A: Polymer Chemistry	
11) Applied Organometallic Chemistry	

- 5 -

- 12) J. Chem. Soc., Dalton Transactions
- 13) AIChE Journal
- 14) Science
- 15) Journal of Materials Chemistry
- 16) Artificial Organs
- 17) Journal of Inorganic Biochemistry
- 18) Australian Journal of Chemistry
- 19) Tetrahedron Letters
- 20) Journal of Organic Chemistry
- 21) Journal of Organometallic Chemistry
- 22) Synlett
- 23) Inorganica Chimica Acta
- 24) Chemische Berichte
- 25) Journal of Physical Organic Chemistry
- 26) Tetrahedron Computer Methodology

External Grant Reviews (in order of frequency)

- 1) NSERC Research Grants
- 2) NSERC Equipment Grants
- 3) Canadian Foundation for Innovation Review Chemistry Panel CFI Panel (Nov. 2001)
- 4) Canadian Institutes for Health Research grant review
- 5) NSERC Industrial Partnerships Program (CRD/IOR)
- 6) NSERC Strategic Grant
- 7) National Science Foundation (USA)
- 8) American Chemical Society, Petroleum Research Fund (PRF)
- 9) Killam Fellowship
- 10) US-Israel Binational Science Foundation

Government Panels

Expert Advisory Panel on Breast Implants, Therapeutic Products Directorate, Medical Devices Bureau, Health Canada, member, 2002

Scientific Advisory Panel on Breast Implants, Therapeutic Products Directorate, Medical Devices Bureau, Health Canada, member, March 2005

Expert Advisory Panel on Breast Implants, Therapeutic Products Directorate, Medical Devices Bureau, Health Canada, member, public panel, Sept. 2005

Areas of Interest

Organosilicon Chemistry

Silicon-biopolymer copolymers, Organofunctional silicones, Silica surface modification, Silicone Polymers,

Protein entrapped in silica and silicones (immobilized enzymes), Silane coupling agents,

Reactive Silicon Species

- 6 -

Other Interests
Ocular Materials, Oral Vaccines, Functional Colloids, Synthesis of Novel Polymers,
Synthetic Organic Chemistry

Honours		
Killam Fellowship (Canada Council of the Arts)		2003-
2004		2003
President's Award for Instruction (McMaster)		2002,
McMaster Student's Union Teaching Award (Faculty of Science)		
1997		2002
Invited Professor, Ian Wark Research Institute, University of South Australia		2000
Gold Key Honour Award, McMaster University		2000
Invited Professor, Unité Mixte CNRS BioMérieux Lyon		2001,
Nomination for McMaster Students Association Teaching Award		
1999		1998, 96,
94		1996
Synergy Award, Conference Board of Canada, NSERC with Mark R. McDermott and Connaught Laboratories, one of 4 annual Canada-wide awards (Award given for Industry-University collaboration)		
Invited Professor, Université de Bordeaux, Bordeaux, France		1998
Invited Professor, Université Paul Sabatier, Toulouse, France		1996
Invited Professor, Universiteit van Amsterdam, Netherlands		1992-93
Dutch National Science Foundation Foreign Researchers Award (NWO Bezoekersbeurs)		1992-93
IUPAC Travel Award		1991
Ichikizaki Travel Award for Young Chemists		1988,
1990		
NSERC Canada University Research Fellowship		1985-95
NSERC Canada Postdoctoral Fellowship		1984-85
NSERC Canada Postgraduate Scholarship		1979-83
T. Sterry Hunt Award (McGill)		1979-80
Society of Chemistry and Industry Gold Key		1978
Gollop Award in Chemistry (Toronto)		1978
S.H. Jane Silver Medal (Toronto)		1977
ACS Undergraduate Award in Analytical Chemistry		1977
Ontario Scholar		1974

CO-WORKERS**M.Sc. students**

STUDENT	YEAR(S)	TOPIC	CURRENT
STATUS			
Lihua Liu	2004	Biopolymer modified silicones	
Lucy Ye (with Bob Pelton, Chemical Engineering)	2004	Bicompatible TiO ₂	

- 7 -

Hazem Amarne Wei'an Zhao Dave Thompson Sanela Martic Ph.D. Queen's	2004 Boronates as structuring agents 2004 Functional Colloids 2003-05 Tethered nucleotides 2003-05 An Investigative Study of Silicon-Based	M.Sc.,
Kui Guo Forrest (Li) Gan McMaster Cindy Liu	Materials as Alternative Matrices for Maldi-ToF Applications 2001-04 Protein in Sol Gel Silica 2001-03 Silicone peptides	Ph.D.,
Scientist Paul Zelisko McMaster Amro Ragheb McMaster David Valentini	2001-03 Tris-Modified Silicone Surfactants and Their Angiootech Interactions with Proteins	Vancouver,
David Bayles McMaster Grant Crowe Apotex Tom Stefanac Allelix	1999-01 Silicone-protein copolymers 1999-01 Anti-fouling coatings 1994-96 Scientist, Glaxo	Ph.D.,
<i>The coupling of synthetic and biological polymers: silicone - starch composites</i>		
Mike Roth PMC Film	1994-96 Towards an α -silyl cation 1992-94 The β -effect of extracoordinate silanes	Scientist,
Ont. Graham McGibbon	1989-91 Controlled formation of new Si-based polymeric systems	Tottenham,
Boeringer- Montreal Weifeng Yu EPA	1988-91 Gas phase measurements of the β -effect for vinyl cations The roles of ligands on silicon	Ingelheim, Scientist,
Andrea Osterroth silicones	1988-90 Poly(methyl methacrylate) sterically stabilized with (co-supervised with R.H. Pelton, Chemical Engineering)	

- 8 -

Thomas Sebastian Zenon	1987-89 <i>Polytrichlorosilylstyrenes</i>	Scientist, Environ.,
Burl. ON Mahmud Hadi	1986-88 The β -effect	MBA
Ph.D. students		CURRENT
STUDENT	YEAR(S)	TOPIC
Dave Thompson	2005-	Silicone-modified saccharides
Forrest (Li) Gan	2003-	Stereoselective reduction
Elodie Pacard	2002-05	Colloidal Silica Aggregates Joint with Christian Pichot, ENS-Lyon France
Amro Ragheb Poly(Ethylene Oxide)	2001-05	Controlling Protein-Silicone Interactions With
Paul Zelisko	2001-05	Silicone-protein copolymers
Masaaki Amako	2001-04	Organometallics in silicones
Mustafa Mohamed	1996-01	<i>Surface modification by silane photolysis</i>
Sonya Balduzzi	1995-01	<i>Functional silane and cobalt protecting groups</i>
Ahmed Alzarny	1999-00	<i>Silicone-protein copolymers</i> withdrawn
Frank Laronde	1995-00	<i>C₂-symmetric Lewis acid catalysts: The role of imidazole in the stereoselective hydrosilylation of carbonyl compounds.</i> Scientist MDS
Rodica Stan	1994-99	<i>Synthesis of novel organofunctional silicones and silanes for interface control</i> GE, WV Scientist,
Vasiliki Bartzoka	1994-99	<i>Silicone-protein interactions</i> Scientist,
Taro Chem..	1995-99	<i>The dynamics and reactivity of η^1-indenyl complexes</i> (co-supervised with M. J. McGlinchey) Asst.
Mark Stradiotto	1993-97	Supported Metallocene Polymerization Catalysts PDF Duke
Prof. Dalhousie Paul Charpentier	1992-97	(co-supervised with A. Hamielec, Chemical Engineering) Ralph Ruffolo 1992-97 <i>Silanes and allylsilanes as possible precursors for transition metal-stabilized silylum ions</i> (co-supervised with M. J. McGlinchey) M. Environment ON
Engineering)	1992-98	Howard Ketelson 1992-98 <i>The colloidal stability and surface chemistry of Stöber silica</i> (co-supervised with R.H. Pelton, Chemical Engineering) Scientist, Alcon

- 9 -

Courtney Henry Sheridan College Carol Dallaire MDS Laval Melvin Farquharson	1990-94 Electrophilic additions, vinylsilanes 1988-92 <i>The β-effect for vinyl cations</i> 1985-86 Lewis Acids	Prof. Scientist, Deceased
P.D.F.s		
STUDENT	YEAR(S)	TOPIC
Rebecca Voß	2005	
Ferdinand Gonzaga	2003	Silicone surfactants
Yan Gao	2003	Proteins in silica
Dan Chen	2000-	Plasticized sol-gels
Amro Ragheb	2005-	Fluorinated silicones
Jian (Jack) Guo surfaces	2004-05	
Zheng Zhang	2001-04	
HongJian Tian	PDF, U. Washington 2001-04	Proteins in silica
Hong Chen surfaces	PDF Waterloo 2001-04	Contact lens cleaning
Technology Shouhai Gao	Assistant Prof., 2001-01	Protein compatible
Alexander Tseitlin Chemist,	1997-98 Wood-plastic composites	Wuhan University of Contact lens cleaning
Toronto Gilles Sèbe Bordeaux Gang Hu	1996-97 Wood-polyolefin Composites 1995-97 Silicone Hydrophobes on Hydrophilic Polymers Superior Coatings	Research Siltech, Assoc. Prof., Ltd.
Winnipeg, Jianxiong Jiang Chengdu	1992-96 Silicone Rubbers	Scientist, Silicone Institute
Christine Gottardo	1995-96 Lab Manager and Paper silanization Lakehead Univ.	Asst. Prof.,

- 10 -

Christophe Le Roux Toulouse C.-K. Yeom Membrane	1993-94 Radical Reactions of Hydrovinylsilanes, 1992-94 Pervaporation Membranes	CNRS, Korean Company PDF,
Hari Gupta McMaster Pankaj Modi McMaster Wei Li China T. Mancilla-Perchon CINVESTAS	1992-93 Silicone Membranes 1991-92 Oligosilylstyrenes, composite membranes 1991-92 Membranes from silicones 1990-91 β -effect; Friedel-Crafts with ketones	PDF Scientist, Prof. Mexico City Scientist,
Stefan Müller BASF	1988-89 The β -effect; Friedel-Crafts with ketones	Germany.

Technicians

STUDENT	YEAR(S)	TOPIC	CURRENT
Renita D'Souza	2004		
Kui Guo	2001	Silica Sol Gels	
Cindy Liu	2000	Chelating silicones	
Tom Stefanac student	1994	Recycling silicone	see M.Sc.
Chunfeng Guo	1991-3	Coupling reagents, glass coatings Parkhurst Knitwear	

Summer Students/In Course Students

STUDENT	YEAR(S)	TOPIC	CURRENT
Aid Atlic	2005	Silicones by enzymes	
Amélie Burleraux	2005	Non-bleeding silicones	
Jill Ranger student	2003-5	Proteins and silicones	4 th year
N. Oakley	2004	Sterically bulky silicones	
S. Krakar	2004	Non-leaching silicone gels	
L. Tran	2004	Enantioselective reduction	
Meghan Marshall	2003-4	Western Blots of Proteins on Silicone (with H. Sheardown)	2003
Lisa Wilkinson Queen's	2003-4	Silica aggregation	4th year student

- 11 -

Lee Freiburger student	2003-4	Metallomesogen synthesis	3rd year
Renita D'Souza	2002-4	Silica formulations (done in school year AND summer)	
Mike Hrynyk summer)	2002-4	Proteins in silicone rubber (done in school year AND	
Joanne Poloczek student	2003	Borosilylation (with Steve Westcott, Mt. Allison) 3 rd year	
Stefanie Mortimer student	2003	Proteins on modified silica surfaces	4 th year
Aoife O'Carroll student	2003		3 rd year
Jonathan Schinkel Allison	2003	Metallomesogen synthesis 4 th year	student Mt.
Susan Jo student	2003	Drug delivery from silicone elastomers	2 nd year
Cynthia Kwong summer)	2002-3	Cleaning contact lenses (done in school year AND	
Ken Mak	2002-3	New silicone emulsions (done in school year)	
Allison Chapman	2002	Contact lens cleaning	
Stefanie Mortimer	2002	Proteins on modified silica surfaces	
Michele Riordon	2002	Silicone-protein conjugates	
Meaghan Walsh	2002	Sol-gel protein in silica	
Jannine Crowley	2001	Silicone Emulsions	
Meaghan Walsh	2001	Enzyme Emulsions	
Laveena Munshi School	2001	Chelating Silicones	Medical
Jannine Crowley	2000	Anti-fouling Coatings	
Ines Alonso Bilbao	2000	Silicones and Steric Stabilization	Ph.D.
Andre Lapierre Pittsburgh	2000	Enantioselective Reductions	Ph.D.
Krista Kerr	1999	Enantioselective ketone reduction	
Dino Alberico Guelph	1999	Thermoplastic elastomeric silicones	Ph.D.
Bryan Davies McMaster	1998	Chelating Silicones	3 rd Year
Friedrika Becker Duisburg	1997	Ethylene Oxide Sterilization of Silicones	Ph.D.
Marko Baller Bryan Davies McMaster	1997	Decouplable Coupling Agents.	Ph.D. Basel
Stacey Bridges Student	1997	Silicone Wood Composites	2 nd Year
Denny Lin Toronto	1996	Wood-PE Composites	Grad.
	1995	Chiral tartrate silanes	M.Sc.

- 12 -

Herman Yang Computers Hanan Atala Helen B. Penny Ralph Ruffolo Toronto M. Tomaschewski BioChem.	1994-96	DMSO for D ₃ production 1994-95 Amino acid derived surfactants 1992 Hydrosilanes 1992 Tartrate modified silicones 1987 The β-effect; Acylation	Quantum PDF Scientist, Thera.,
Laval Patricia Falletta CCIW Jennifer Townsend Ont. Min.	1986-87 1986	Polysilylstyrenes Polysilylstyrenes	Scientist, Scientist, of
Environment Axel Neuy Universität	1988-89	β-effect	Ph.D. Duisburg,
Germany Peter Hülser GmbH,	1985-86	The Silicon α- and β-Effects	SurTec Germany.
Fourth Year Project Students			CURRENT
STUDENT	YEAR(S)	TOPIC	
STATUS			
Stephanie Krakar	2004	Oligocarboxylate silicones	
Jill Ranger	2004	Surface bound nucleosides	M.Sc., N.
Stefanie Mortimer	2003	Heparin delivery	
Carolina			M.Sc., UBC
Lauren Scott	2003	Antithrombogenic surfaces	
Andy Cleaver	2000	Enantioselective Reductions	
Ines Alonso	1999	Silicones and Steric Stabilization	
Andre Lapierre	1999	Enantioselective Reductions	
Dwayne Stresman	1998	Siloxycarbenes (with J. Warkentin)	
Dino Alberico	1998	Cp-silicones, thermal crosslinking	
Gladys Chan	1998	Protein-Silicone Latexes	Medical
school			
Joerg Urschey	1997	Fluorescent Silicones	
Andrea Straatmann	1997	Water borne coupling agents	
Armin Schneider	1996	Hydrosilation catalysts	
Jeff Kent	1996	Diplomarbeit, Duisburg Enzymes on Silicone Surfaces	

- 13 -

Alex Andronov Berkely	1995	Amphiphilic Polymers	M.Sc.
Hanan Atala Thomas Kuhnhen Duisburg	1995 1995	Diels-Alder Based Coupling Agents Inorganometallic Polymers	Ph.D.
Andrew Stadler Jay Atanasoff Chris Roos Frankfurt	1994 1994 1993	Organomodified silicone colloids Pt hydrosilation Silanone from thermal decomposition	Ph.D.
Dagmar Ulbrich Frankfurt,	1993	Pausen Khand Reactions Using Disilyl-dicobalt	Ph.D.
Jason Bernais Mike Roth Bjorn Ramacher Duisburg	1993	Alkyne complexes Silicone-cellulose copolymers	Germany MBA
Rick Barker Pioneer	1991 1991	see M.Sc. student Tetrakis(trimethylsilylalkynylsilanes	Ph.D.
Stoney Creek	1990	Silicone stabilized colloids	Scientist,
Ralf Jueschke Duisburg	1989	The β -effect, Diastereoselectivity	Ph.D.
Bernhard Hladik Duisburg	1989	Silicone radical reactions	Ph.D.
Stefan Wenzel Duisburg	1990	Silylstyrene condensations	Ph.D.
Daniel Chau Corp.	1989	Slow release drugs	Newalta
Sean Guenette Ottawa	1988-89	Slow release drugs	Ph.D.
Axel Neuy Duisburg	1988-89	The β -effect	Ph.D.
Christina Kremers Duisburg	1987-88	Silane polymers and chiral silaheterocycles	Ph.D.
Elizabeth Jefferson Toronto	1987-88	The β -effect with Styrylsilanes	PDF,
George Elia Patricia Falletta CCIW	1986-87 1986-87	Mechanism of Mukaiyama Reaction Polysilylstyrenes,	Scientist,
Peter Hülser GmbH,	1985-86	The Silicon α - and β -Effect	SurTec Germany.

- 14 -

Research Funding
Applications (Type O= Operating, E = Equipment, I = Infrastructure, MI = Major Installation, C=Contract)

<u>Applicants</u>	<u>Title of Project, Grantor</u>	<u>Type</u>	<u>Amount</u>
-------------------	----------------------------------	-------------	---------------

Year

	Biomimetic Intraocular Lens Surfaces for Minimization of Posterior Capsule Opacification, NSERC	CHRP	
Brook, M. A. 2006	HPLC Chromatograph, NSERC	E	29,604
Cappretta, A.			
Brook, M. A. 2006	GPC Chromatograph, NSERC	E	86,610
Sheardown, H.D. PDMS Based Keratoprosthesis In vitro and in vivo 2006-2010		O	142,500
Brook, M.A., CIHR (Brook portion, \$35K)			
West-Mays, J.			
Brook, M. A. 2006-11	Silicone Biocompatibility from Interfacial Control NSERC	O	115500

Research Funding

Funding Held (Type O= Operating, E = Equipment, MI = Major Installation)

Brook, M.A. 2006	Biocompatible, Thixotropic amphiphilic silicones as	Travel	10,000
Ganachaud, F.	retinal tamponades, Ambassade de France (exchange Montpellier)		
Pelton, R.H. 2006-10	Sentinel: The Canadian Research Network on	O	10,000,000
Brook, M. A. 18 others	Bioactive Paper, NSERC, Brook portion 5%		
Brook, M. A. 2005	Intraocular lenses, AMO	Grant	157500
Sheardown, H.D.			
Sheardown, H.D. 2004-05	PDMS – Hydrogel Interpenetrating Networks as	I2I	125000
Brook, M. A.	Ophthalmic Biomaterials		

- 15 -

Brennan, J.D. 2004	Mercury Porosimeter for Characterization of Macroporous Silicas, NSERC	RT1(E) 88,419
Brook, M. A. 2004	Silicone-Protein complexes: Using molecular affinity to clean surfaces, Alcon Lab. (US 100000)	O 130000
Brook, M. A. 2004	Anti-fouling surfaces to reduce clotting (provided by J. Weitz, Hamilton Health Sciences	O 20000
Brook, M. A. 2003	Dow Corning Toray Silicones Silicone Liquid Crystals (M. Amako)	O 89000
Brash, J. 2003 +3 others	Gamma Counter, NSERC	E 39405
Brennan, J.D. 2003-6	Development of Mesoporous Monolithic Columns for	CRD 1.0 x10 ⁶
Brook, M. A. Pinto, D.	High Throughput Proteomics Applications NRC.NSERC, with MDS-Sciex BROOK PORTION (37%)	
Volmer, D. Covey, T.		
Sheardown, H. 2003,4	PDMS Based Artificial Corneas – Cornea Epithelial and Stromal Cell Interactions and Device Design	O 110000
Griffith, M. 2005		120000
Brook, M. A.	NSERC CHRP (40%)	
Sheardown, H. 2003-2006	Silicone Lenses for the Mitigation of Scarring	O 70000
Brook, M. A. Wong, D.	Following Corrective Laser Eye Surgery Materials & Manufacturing Ontario (Brook portion 40%)	
Brook, M. A. 2001-2005 Control, NSERC	Silicon at the Interface: Synthesis Directed to Interfacial	O 74500
Brook, M. A. 2003	Silicone-Protein complexes: Using molecular affinity to clean surfaces, Alcon Lab. (US 100000)	O 155000

- 16 -

Brook, M. A. 2002	Silicone-Protein complexes: Using molecular affinity to clean surfaces, Alcon Lab. (\$US 80000)	O	120000
Brook, M. A. 2001-2002	Dow Corning Toray Silicones PhD Research Student Funding (M. Amako)	O	25000
Brook, M. A. 2001	International Collaborative Travel Grant, CIHR (+ living expenses in France up to 2 months paid by CNRS)		1600
Brook, M. A. 2001	Silicone-Protein complexes: Using molecular affinity to clean surfaces, Alcon Lab.	O	90000
Brook, M. A. 2001	Protein-Containing Emulsions in Mucosal Immunology	O	84750
McDermott, M. 2002	NSERC CRHP.		89750
2003			84750
Organ, M. 2001-3	Accelerating Drug Discovery Using Frontal Affinity	CRD	1.6x106
Brook, M. A. Brennan, J.D. Schriemer, D. 2001-3	Chromatography/Mass Spectrometry, NSERC, with INH with MDS-Sciex BROOK PORTION		100000
McCarry, B. E. 2000	Biomolecular Interactions, Ontario Innovation Trust	MI	5,190,000
Brook, M. A. (16 others)			
McCarry, B. E. 2000	Biomolecular Interactions, CFI	MI	5,190,000
Brook, M. A. (16 others)			
Harrison, P. 2000	FT-IR System for <i>in-situ</i> Reaction Monitoring, NSERC	E	106145
Warkentin, J. McGlinchey, M. Brook, M. A. Berti, P.			

- 17 -

Valliant, J.F.

<i>Brook, M.A.</i>	300 MHz CP-MAS NMR Spectrometer, NSERC	MI	336800
2000			
<i>Harrison, P.H.</i>			
<i>Bain, A., Leigh, W.J.</i>			
<i>McGlinchey, M.J.</i>			
<i>Epand, R.; Valliant, J.F.</i>			
<i>Brook, M. A.</i>	Reduced Fouling Quartz Surfaces for	O	40000
2000-2001	UV Sterilization of Water, Material & Manufacturing Ontario		
<i>Pelton, R.H.</i>	Calcium Carbonate Adhesion to Paper, Mintech Canada,	O	35840
1999-2003			
<i>Brook, M.A.</i>	Grant-in-Aid (13 hours/month)		
<i>Brook, M. A.</i>	Reduced Fouling Quartz Surfaces for	O	10000
1999-2000	UV Sterilization of Water, Trojan Technologies Inc.		
<i>Brook, M. A.</i>	Reduced Fouling Quartz Surfaces for	O	70000
1999-2000	UV Sterilization of Water, Material & Manufacturing Ontario		
<i>Pelton, R. H.</i>	Calcium carbonate adhesion to paper, Mintech Canada	O	30,000
1999-2002			
<i>Brook, M. A.</i>	Silicone Spreading, Unilever Research	C	6500
1999			
<i>Terlouw, J. K..</i>	MS Infrastructure	I	498000
1998			
<i>Brook, M. A.</i>			
<i>Bain, A.</i>			
<i>Stöver, H.</i>			
<i>Brook, M. A.</i>	Silicone Membranes, Tel-Tek Norsk Hydro	C	28000
1998			
<i>Brook, M. A.</i>	Modifying Quartz Surfaces, Trojan Technologies	C	13462
1998			

- 18 -

<i>Brook, M.A.</i>	Dual Functionality Coupling Agents for the Fabrication of Wood-Plastic Composites, Material & Manufacturing Ontario	O	80000
1998-2000			
<i>Brook, M.A.</i>	Silicone sterilization with EO	O	22000
1997	OCMR and Walsh Medical Devices		
<i>Brook, M.A.</i>	Functional Silane Coupling Agents : Grafting	O	44000
1997-2000	Incompatible Materials and Anchoring Transition Metals, NSERC Operating, 40 hr.		
<i>Brook, M.A.</i>	Wood/Recycled Polyolefin Composites, OCMR	O	20000
1997			
<i>Lott, J.</i>	Environmental Microscope, NSERC, Major installation	MI	633481
1996			
<i>Brook, M.A. (one of several major applicants)</i>			
<i>Kramer, J. M.</i>	Molecular Modelling Software and Computer, NSERC	E	47710
1996			
<i>Brook, M.A.</i>			
<i>Ford, D.</i>			
<i>Schwarz, H.</i>			
<i>Yang, D.</i>			
<i>Brook, M.A.</i>	Wood/Recycled Polyolefin Composites, OCMR	O	50000
1996			
<i>Brook, M.A.</i>	Microparticle Delivery Systems for Immunogenic Agents, NSERC CRD Matching Funds	CRD	64500
1994-6			
<i>Brook, M.A.</i>	Wood/Recycled Polyolefin Composites, OCMR	O	60000
1995			
<i>Brook, M.A.</i>	Novel Membranes, Ontario-Singapore Technology	O	92000
1995-96			
<i>Dickson, J. M.</i>	(50% Brook)		
<i>Brook, M.A.</i>	Silicone Modified Papers, MODO	O	21000
1995-7			
<i>Pelton, R.</i>	(50% Brook)		

- 19 -

Brook, M.A.	Microparticle Delivery Systems for Immunogenic 1995-6 McDermott, M. Agents, URIF Matching Funds, (50% Brook) Underdown, B.	O	122000
Brook, M.A.	Oral Immunization Delivery Systems, 1994-6 McDermott, M. Connaught Laboratories (50% Brook) Underdown, B.	O	120000
Brook, M.A.	Dynamic Light Scattering Apparatus, NSERC, 1994 Pelton, R. Winnik, F., Stöver, H.	E	105197
Brook, M.A.	Silicon based Polymerization Initiitors, OCMR 1994	O	35000
Brook, M.A.	Oral Immunization Delivery Systems, Connaught Lab. 1994	O	120000
Brook M.A.	Stereocontrol and Silicon: Application to Organic and 1993-96 Polymer Synthesis, NSERC	O	31000
Brook, M.A.	Silicon based Polymerization Initiitors, OCMR 1993-	O	20000
Stöver, H.D.H.	Differential Scanning Calorimeter, Thermalgravimetric 1992	E	71559
Brook, M.A.	Analyzer, NSERC		
Brook, M.A.	Oligosilylstyrenes as Glass Coating Materials, OCMR 1991	O	15500
Brook, M.A.	Pervaporative Membranes, URIF Matching Funds 1990-92 Dickson, J. (50% Brook)	O	57000
Brook, M.A.	Pervaporative Membranes, NSERC CRD Matching Funds 1990-92 Dickson, J. (50% Brook)	O	54000
Brook, M.A.	Pervaporative Membranes, ICST 1990-92	O	45000

- 20 -

Dickson, J.	(50% Brook)			
Brook, M.A. 1990-92	Organosilicon compounds: From the β -effect to Polymers, NSERC	O	30000	
Brook, M.A. 1989	Polymers, OCMRO	4500	1989	
Brook, M.A. 1989	Silicone Polymers, Dow Corning	O	6500	
Brook, M.A. 1989	Gel Permeation Chromatograph, NSERC	E	54260	
Brook, M.A. 1988	Sterically Stabilized Particles, Xerox	O	5000	
Pelton, R.	(50% Brook)			
Brook, M.A. 1988	Glycol-Silicone Polymers, J.P. Bickell Foundation	O	12500	
Brook, M.A. 1988-89	Chiral Manifolds & Lewis Acids: Organosilane & Titanium Compounds, NSERC	O	30000	
Brook, M.A. 1988	Oligotrihalosilylstyrenes: & Polymer Blending Agents OCMR	O	12500	
Brook, M.A. 1987-90	Polysilylstyrenes, MIPPT	O	5000	
Brook, M.A. 1987	Silicone Coating Materials, SEED (E + IC)	O	2600	
Falletta, P.				
Brook, M.A. 1987	Organosilicon Compounds Bearing Chiral Ligands: Synthetic Applications NATO	O	2500	
Brook, M.A. 1987	Lewis Acids in Enantioselective Organic Synthesis McMaster University	O	13000	

- 21 -

Brook, M.A.	Polysilylstyrenes, MIPPT 1986	O	2000
Brook, M.A.	The Application of the Trifluorosilyl Group to 1985-87 Organic Synthesis NSERC	O	17280
Brook, M.A.	Lewis Acids in Organic Synthesis, McMaster University 1985	O	15000

Lifetime Publications (Green = undergraduates; Red = graduate students; Blue = PDFs)

Peer Reviewed

(a) Books

- 1 B BROOK, M. A. *SILICON IN ORGANIC, ORGANOMETALLIC AND POLYMER CHEMISTRY*, Wiley: New York, 2000, 608 pages, (704 including tables, and indices, SOLE AUTHOR).

(b) Contributions to Books

6. F M. Liu, A. Ragheb, P. Zelisko, and M. A. Brook, *Preparation and Application of Silicone Emulsions Using Biopolymers*, In *Colloidal Biomolecules, Biomaterials, and Biomedical Applications* (Surfactant Science, Vol. 116), Elaissari, Abdelhamid, Ed.; Marcel Dekker Inc., 2004, Chapter 11, pages 309-329, invited manuscript.
5. N Laronde, F.; Brook, M. A. *Amino acid catalysts for the enantioselective hydrosilane reduction of carbonyl groups*, In *Catalysts for the Fine Chemical Synthesis*, Vol. 1, *Hydrolysis, Oxidation and Reduction*, Roberts, Stan M.; Poignant, G., Eds., 2002, pp. 169-172.
4. F Bartzoka, V.; McDermott, M. R.; Brook, M. A., *Protein-Silicone Interactions at Liquid/Liquid Interfaces*, In *Emulsions, Foams and Thin Films*, Mittal, K. L.; Kumar, P., Eds., Dekker, New York, 2000, Chap. 21, pp. 371-380, Invited manuscript.
3. R Adrian G. Brook and Michael A. Brook, *The Chemistry of Silenes*, *Adv. Organomet. Chem.*, 1996, 39, 71-158.
2. R Michael A. Brook, *1,2-bis-(Trimethylsilyloxy)cyclohexene*, in *Encyclopaedia of Reagents in Organic Synthesis*, L. Paquette, Ed., John Wiley and Sons, Vol 1, 1995, p. 602, invited manuscript.
1. R Michael A. Brook, *tert-Butyl α-chloro-α-trimethylsilylacetate*, in *Encyclopaedia of Reagents in Organic Synthesis*, L. Paquette, Ed., John Wiley and Sons, Vol. 2, 1995, p. 862, invited manuscript.

(c) Journal Articles (C = communication, N = Note, F = Full paper, R = Review)

128. C Ferdinand Gonzaga and Michael A. Brook, *Structured Nanoparticles in Silicone Surfactant Multilayers*, *Angew. Chem. Int. Ed.*, submitted 11/8/2005

- 22 -

Accepted for Publication

132. C Weian Zhao, Yan Gao, Srinivas A. Kandadai, Michael A. Brook* and Yingfu Li.
DNA Polymerization on Gold Nanoparticles via Rolling Circle Amplification:
Towards Novel Scaffolds for Three-Dimensional Periodical Nanoassembly,
accepted *Angew. Chem. Ed. Engl.* Jan 2006.
131. F Elodie Pacard, Michael A. Brook, Amro M. Ragheb, Christian Pichot and Carole Chaix, *Elaboration of silica colloid/polymer hybrid support for oligonucleotide synthesis*, *Colloids Surf. B: Biointerfaces*, accepted, Dec. 2005.
130. F Chen, H., Brook, M. A., Sheardown, H. D., Chen, Y., Klenkler, B. *A Generic Bioaffinity Surfaces*, accepted *Bioconjugate Chemistry* Nov 2005 (ACS ASAP)
CODEN: BCCHE ISSN:1043-1802. AN 2005:1345621).

Publications

129. F Hodgson, Richard J.; Besanger, Travis R.; Brook, Michael A.; Brennan, John D.
Inhibitor Screening Using Immobilized Enzyme Reactor Chromatography/Mass Spectrometry. *Anal. Chem.* 2005, 77, 7512-7519.
128. Liang, L.; Dickson, J. M.; Zhu, Z.; Jiang, J.; Brook, M. A., *Removal of 1,2-dichloroethane from aqueous solutions with novel composite polydimethylsiloxane pervaporation membranes*. *J. Appl. Polym. Sci.* 2005, 98, 1477-1491.
127. F Chen, H.; Chen, Y.; Sheardown, H.; Brook, M. A. *Immobilization of heparin on a silicone surface through a PEG spacer*, *Biomaterials*, 2005, 26, 7418-1724.
126. C Ragheb, A. M.; Brook, M. A. *Highly stable chymotrypsin entrapped in silicone elastomers*, *Biomaterials* 2005, 26, 6973-6983.
125. F Yang Chen, Zheng Zhang, Xihua Sui, John D. Brennan and Michael A. Brook,
Reduced Shrinkage of Sol-Gel Derived Silica Using Sugar-based Silsesquioxane Precursors, *J. Mater. Chem.* 2005, 15, 3132 – 3141.
124. F Hodgson, Richard J.; Brook, Michael A.; Brennan, John D., *Capillary-Scale Monolithic Immunoaffinity Columns for Immunoextraction with In-Line Laser-Induced Fluorescence Detection*. *Anal. Chem.* 2005, 77, 4404-4412
123. F Dong, Hanjiang; Brook, Michael A.; Brennan, John D., *A New Route to Monolithic Methylsilsesquioxanes: Gelation Behavior of Methyltrimethoxysilane and Morphology of Resulting Methylsilsesquioxanes under One-Step and Two-Step Processing*, *Chem. Mater.* 2005, 17, 2807-2816.
122. F Sonya Balduzzi, Michael A. Brook and Michael J. McGlinchey,
Diastereoselective Addition of Allyl- and Crotylstannanes to Dicobalt-Complexed Acetylenic Aldehyde, *Organometallics* 2005, 24, 2617-2627.121.
F Kovarik, Peter; Hodgson, Richard J.; Covey, Tom; Brook, Michael A.; Brennan, John D. *Capillary-Scale Frontal Affinity Chromatography/MALDI Tandem Mass Spectrometry Using Protein-Doped Monolithic Silica Columns*, *Anal. Chem.* 2005, 77, 3340-3350.

- 23 -

120. F Masaaki Amako, Jonathan Schinkel, Michael A. Brook, Michael J. McGlinchey and James F. Britten, *Rac/meso Transformations of Disiloxane-bis(1-indenyl)-ansa-ferrocenes: An x-ray Crystallographic and NMR Study*, *Organometallics*, 2005, 24, 1533-1543.119. F. Xihua Sui, Jorge A. Cruz-Aguado, Yang Chen, Zheng Zhang, Michael A. Brook and John D. Brennan, *Properties of Human Serum Albumin Entrapped in Sol-Gel-Derived Silica Bearing Covalently Tethered Sugars*, *Chem. Mater.* 2005, 17, 1174-1182.
118. F Hong Chen, Michael A. Brook, Yang Chen, and Heather Sheardown, Surface properties of PEO-silicone composites: reducing protein adsorption *J. Biomaterials Sci., Polym. Ed.*, 2005, 16, 531-548.
117. F Hong Chen, Zheng Zhang, Yang Chen, Michael A. Brook, Heather Sheardown, Protein Repellant Silicone Surfaces by Covalent Immobilization of Poly(Ethylene Oxide), *Biomaterials*, 2005, 26, 2391-2399.
116. F Amro Ragheb, Michael A. Brook and Michael Hrynyk, *Highly active, lipase silicone composites*, *Biomaterials*, 2005, 26, 1653-1664.
115. F Masaaki Amako, Jonathan Schinkel, Lee Freiburger and Michael A. Brook, *Silicone Compatible, Siloxane-Supported Organometallic Compounds and Their Catalytic Activities for the Hydrosilylation of Vinylsilanes and Dienes*, *J. Chem. Soc., Dalton Trans.*, 2005, 74 - 81.
114. F Michael A. Brook, Yang Chen, Kui Guo, Zheng Zhang and John D. Brennan, *Sugar-Modified Silanes: Precursors for Silica Monoliths*, *J. Sol. Gel. Sci. Technol.* 2004, 31, 343-348.
113. F Dina Tleugabulova, Andy M. Duff, Zheng Zhang, Yang Chen, Michael A. Brook and John D. Brennan, *Evaluating Growth Mechanisms of Silica Particles using Fluorescence Anisotropy Decay Analysis*, *Langmuir* 2004, 20(14), 5924-5932.
112. F Cruz-Aguado, Jorge A.; Chen, Yang; Zhang, Zheng; Brook, Michael A.; Brennan, John D. *Entrapment of Src Protein Tyrosine Kinase in Sugar-Modified Silica*, *Anal. Chem.* 2004, 76(14), 4182-4188.
111. F Jorge A. Cruz-Aguado, Yang Chen, Zheng Zhang, Nadine H. Elowe, Michael A. Brook and John D. Brennan, *Ultrasensitive ATP Detection Using Firefly Luciferase Entrapped in Sugar-Modified Sol-Gel Derived Silica*, *J. Am. Chem. Soc.* 2004, 126, 6878-6879.
110. F R. J. Hodgson, Y. Chen, Z. Zhang, D. Tleugabulova, H. Long, X. Zhao, M. Organ, M. A. Brook, J. D. Brennan, *Protein-Doped Monolithic Silica Columns for Capillary Liquid Chromatography Prepared by the Sol-Gel Method: Applications to Frontal Affinity Chromatography*, *Anal. Chem.* 2004, 76, 2780-2790.
109. F Liang, Liang; Dickson, James M.; Jiang, Jianxiong; Brook, Michael A. *Pervaporation of 1,2-dimethoxyethane from aqueous solutions by crosslinked oligostyrene-poly(dimethylsiloxane) composite membranes*. *J. Appl. Polym. Sci.* 2004, 92, 2284-2294.
108. F Liang, Liang; Dickson, James M.; Jiang, Jianxiong; Brook, Michael A. *Effect of low flow rate on pervaporation of 1,2-dichloroethane with novel*

- 24 -

- polydimethylsiloxane composite membranes.* *J. Membrane Sci.* **2004**, *231*(1-2), 71-79.
107. F Michael A. Brook, Yang Chen, Kui Guo, Zheng Zhang and John D. Brennan, Sugar-Modified Silanes: Precursors for Silica Monoliths, *J. Mater. Chem.* **2004**, *14*, 1469 – 1479.
106. F Dina Tleugabulova, Zheng Zhang, Yang Chen, Michael A. Brook and John D. Brennan Fluorescence Anisotropy in Studies of Solute Interactions with Covalently Modified Colloidal Silica Nanoparticles, *Langmuir* **2004**, *20*, 848-854.
105. F Michael A. Brook, Hong Chen and Heather Sheardown, Silicone elastomers for reduced protein adsorption, *Biomaterials*, **2004**, *25*, 2273-2282.
104. F Frank J. LaRonde and Michael A. Brook, Allylation of aldehydes catalyzed by chiral N,N'-bis(N-methyl-2-methylene-4,5-bisphenyl-imidazole)-1,2-cyclohexane diamine rhodium (III) complexes, *Can. J. Chem.* **2003**, *81*, 1206-1212, issue dedicated to John Hartod, invited manuscript.
103. F Amro Ragheb, Michael A. Brook and Michael Hrynyk, Highly activated, silicone entrapped, lipase, *Chem. Commun.*, **2003**, 2314–2315.
102. F Travis R. Besanger, Yang Chen, Anil K. Deisingh, Richard Hodgson, Wen Jin, Stanislas Mayer, Michael A. Brook and John D. Brennan, Screening of Inhibitors using Enzymes Entrapped in Sol-Gel Derived Materials, *Anal. Chem.* **2003**, *75*, 2382 – 2391.
101. F Brook, M. A. Laronde, F. J., Ragheb, A., Controlling Silica Surfaces Using Responsive Coupling Agents, *Colloid Polym. Sci.* **2003**, *281*, 391–400, invited manuscript.
99. F M. Mohamed, M. A. Brook, Allylsilane-Modified Amino Acids from the Claisen Rearrangement, *Helv. Chim. Acta* **2002**, *85*, 4165-4181 invited manuscript.
98. F P. Zelisko, M. A. Brook, Stabilization of α -Chymotrypsin and Lysozyme Entrapped In Water-In-Silicone Oil Emulsions, *Langmuir*, **2002**, *18*, 8982-8987.
97. F Gang Hu, Frank LaRonde and Michael A. Brook, Amino Acid-Terminated Silicones, *Silicon Chem.* **2002**, *1*, 215–222.
96. F Michael A. Brook, Paul M. Zelisko, Maeghan J. Walsh and Janinne N. Crowley, Silicone-protein surfactants: stability of water-in-silicone oil emulsions, *Silicon Chem.* **2002**, *1*, 99–106.
95. F M. S. Eikeland, M.-B. Hägg, Michael A. Brook, M. Ottøy, A. Lindbråthen, Durability of Poly(dimethylsiloxane) when exposed to Chlorine Gas, *J. Appl. Poly. Sci. A*, **2002**, *85*, 2458-2470.
94. F Brook, M. A.; Ragheb, A. Oxidizable Coupling Agents: Introduction of Surface Functionality, *J. Adhesion*, **2002**, *78*, 521-541.
93. F Gilles Sèbe and Michael A. Brook, Hydrophobization of Wood Surfaces: Covalent Grafting of Silicone Polymers, *Wood Sci. Tech.* **2001**, *35*, 269-282.
92. C Mohamed, M.; Brook, M. A. Synthesis of Allylsilane-Containing Amino Acids via the Claisen Rearrangement, *Tetrahedron Lett.* **2001**, *42*, 191-193.
91. F Mustafa Mohamed and Michael A. Brook, Photolysis of Tris(trimethylsilyl)silane: Trapping of Silyl Radicals, *Can. J. Chem.* **2000**, *78*, 1357-1362.

- 25 -

90. N Bain, A., Brook, M. A.; Hazendonk, P.; Reid, D. L.; Stan, R. S. *Analysis of NMR Spectra of Some Dimethylsilanes*, *Magn. Res. Chem.* 2000, 38, 894-895.
89. F Vasiliki Bartzoka, Gladys Chan and Michael A. Brook, *Protein-Silicone Synergism at Liquid/Liquid Interfaces*, *Langmuir* 2000, 16, 4589-4593.
88. F Sonya Balduzzi, Krista Kerr and Michael A. Brook, *Alkoxyallylsilanes: Functional Protecting Groups*, *Tetrahedron* 2000, 56, 1617-1622.
87. F Stradiotto, M.; Brook, M. A.; McGlinchey, M. J. *The Molecular Dynamics and Reactivity of Tris(1-Indenylsilane): An NMR Spectroscopic and X-ray Crystallographic Study*, *J. Chem. Soc., Perkin Trans. 2*, 2000, 611-618.
86. F Stradiotto, M.; Hazendonk, P.; Bain, A. D.; Brook, M. A.; McGlinchey, M. J. *Probing the Effect of Organic and Organometallic Functionalization on [1,5]-Silicon Shifts in Indenylsilanes*, *Organometallics*, 2000, 19, 590-601.
85. F LaRonde, F. J.; Brook, M. A. *Stereoselective Reduction of Ketones Using Extracoordinate Silicon: C₂-Symmetric Ligands*, *Inorg. Chim. Acta* 1999, 296, 208-221.
84. C M. R. McDermott, M. A. Brook, V. Bartzoka, *Adjuvancy effect of different types of silicone gel* (Letter to the Editor commenting on the paper by Naim et al. (*J. Biomed. Mater. Res.* 1997, 37, 5341), *J. Biomed. Mater. Res.* 1999, 46, 132-133).
83. F Michael A. Brook, Christine Gottardo, Sonya Balduzzi and Mustafa Mohamed, *The Photolytic and Hydrolytic Lability of Sisy (Si(SiMe₃)₃) Ethers: A Fluoride-Resistant, Photolabile Alcohol Protecting Group*, *Tetrahedron* 1999, 55, 10027-10040.
82. F James A. Dunn, William J. Hunks, Ralph Ruffolo, Suzie S. Rigby, Michael A. Brook, and Michael J. McGlinchey *Metal Cluster Stabilized Fluorenyl, Indenyl, and Cyclopentadienyl Antiaromatic Cations: An NMR and X-ray Crystallographic Study*, *Organometallics* 1999, 18, 3372-3382.
81. C Frank J. Laronde and Michael A. Brook, *Stereoselective Reduction of Ketones By Histidine-Alkoxy silane Complexes*, *Tetrahedron Lett.* 1999, 40, 3507-3510.
80. F Stradiotto, M.; Brook, M. A.; McGlinchey, M. J. *The Molecular Dynamics and Cycloaddition Chemistry of Tris(1-Indenyl)allylsilane: Generation of the First Crystallographically-Characterised Tris(benzonorbornonyl)silane*, *New J. Chem.* 1999, 317-321.
79. R Vasiliki Bartzoka, Mark R. McDermott and Michael A. Brook *Protein-Silicone Interactions*, *Advan. Mater.* 1999, 11, 257-259.
78. F Heritage, P. L.; Underdown, B. J.; Brook, M. A.; and McDermott, M. R.; *Oral Administration of Polymer-Grafted Starch Microparticles Activates Gut-Associated Lymphocytes and Primes Mice for a Subsequent Systemic Antigen Challenge*, *Vaccine* 1998, 16, 2010-2017.
77. N Brook, M. A.; Urschey, J.; Stradiotto, M. *Hexacarbonyldicobalt-Complexed 1,2-Dioxa-2-Silacycloheptynes*, *Organometallics* 1998, 17, 5342-5346.
76. F Ruffolo, R.; Brook, M. A.; McGlinchey, M. J. *Metal-Mediated Allyl Transfers in (Alkynyl-allylsilane)Co₂(CO)₈ Complexes: A Synthetic and Structural Study*, *Organometallics* 1998, 17, 4992-4996.

- 26 -

75. F Paul A. Charpentier, Shiping Zhu, Archie E. Hamielec and Michael A. Brook, *Continuous Solution Polymerization of Ethylene Using Metallocene Catalyst System, Cp₂ZrCl₂/MMAO/TMA*, *Ind. Chem. Eng. Res.* 1997, 36, 5074-5082.
74. F McDermott, M. R.; Heritage, P. L.; Bartzoka, V.; Brook, M. A. *Polymer-grafted Starch Microparticles for Oral and Nasal Administration*, *Immunol. Cell Biol.* 1998, 76, 256-262.
73. C Stradiotto, M.; Brook, M. A.; McGlinchey M. J. *Can metal clusters assist silicon migrations? An NMR spectroscopic and X-ray crystallographic study*, *Inorg. Chem. Commun.* 1998, 1, 105-108.
72. F Charpentier, P. A.; Hamielec, A. E.; Zhu, S.; Brook, M. A., *Effect of Aluminoxane on Semi-Batch Polymerization of Ethylene Using Zirconocene Dichloride*, *Polymer*, 1998, 39, 6501-6511.
71. F Vasiliki Bartzoka, Michael A. Brook, and Mark R. McDermott, *Silicone-Protein Films: Establishing the Strength of the Protein-Silicone Interaction*, *Langmuir* 1998, 14, 1892-1898.
70. F Vasiliki Bartzoka, Michael A. Brook, and Mark R. McDermott, *Protein-Silicone Interactions: How Compatible Are The Two Species?* *Langmuir* 1998, 14, 1887-1891.
69. F Howard A. Ketelson, Robert Pelton, and Michael A. Brook, *Surface and Colloidal Properties of Hydrosilane Modified Stöber Silica*, *Colloids and Surfaces A* 1998, 132, 229-239.
68. F Heritage, P. L.; Brook, M. A.; Underdown, B. J. and McDermott, M. R.; *Intranasal Immunization with Polymer-Grafted Microparticles Activates the Nasal-Associated Lymphoid Tissue and Draining Lymph Nodes*, *Immunology* 1998, 93, 249-256.
67. F Michael A. Brook and Tomislav M. Stefanac, *Hydrovinylsilanes for Sequential Radical Reactions: A New Route to Block Copolymers*, *Heteroatom Chem.* 1998, 9, 241-251.
66. F Le Roux, C.; Yang, H.; Wenzel, S.; Brook, M. A. *Using "Anhydrous" Hydrolysis to Favor Formation of Hexamethylcyclotrisiloxane from Dimethyldichlorosilane*, *Organometallics* 1998, 17, 556-564.
65. Ralph Ruffolo, Sabine Kainz, Hari K. Gupta, Michael A. Brook, and Michael J. McGlinchey, *A Synthetic and Structural Study on Metal Cluster Complexes of Allyl-Alkynyl-Silanes: Does Protonation Lead to Metal-Stabilized Silyl Cations?*, *J. Organomet. Chem.* 1997, 547, 217-226.
64. F Lau, W. W. Y.; Finlayson, J.; Dickson, J. M.; Jiang, J.; Brook, M. A. *Pervaporation performance of oligosilylstyrene-polydimethylsiloxane membrane for separation of organics from water*. *J. Membr. Sci.* 1997, 134, 209-217.
63. F Michael A. Brook, Jianxiong Jiang, Philippa Heritage, Brian Underdown and Mark R. McDermott, *Silicone-Protein Interaction at the Interface between a Functional Silicone and a Protein/Starch Microparticle*, *Colloids and Surfaces B: Biointerfaces* 1997, 9, 285-295.
62. F Michael A. Brook, Jianxiong Jiang, Philippa Heritage, Vasiliki Bartzoka, Brian Underdown and Mark R. McDermott, *The Silicone-Protein Interaction at the*

- 27 -

- Interface between a Functional Silicone and a Protein/Starch Microparticle,* *Langmuir* 1997, 13, 6279-6286.
61. F. Stradiotto, M.; Hughes, D. W.; Bain, A. D.; Brook, M. A.; McGlinchey, M. J., *The Fluxional Character of ($\eta^5\text{-C}_5\text{H}_5$) $\text{Fe}(\text{CO})_2(\eta^1\text{-C}_5\text{H}_7)$* : Evidence for the [4+2] Cycloaddition of a Metal-Substituted Isoindene with Tetracyanoethylene, *Organometallics* 1997, 16, 5563-5568.
60. F. T. Kuhnhen, M. Stradiotto, R. Ruffolo, D. Ulbrich, M. J. McGlinchey and Michael A. Brook, *Oligo(alkynylsilanes): Templates for Organometallic Polymers*, *Organometallics* 1997, 16, 5048-5057.
59. F. T. Kuhnhen, M. Stradiotto, R. Ruffolo, D. Ulbrich, M. J. McGlinchey and Michael A. Brook, *Using Hydrosilylation To Assemble Organometallic Polymers Containing Combinations of Silicon-Based Functional Groups*, *Organometallics* 1997, 16, 5042-5047.
58. C. Brook, M. A.; Gottardo, C.; Balduzzi, S.; Mustafa, M. *The Sisyl (tris(Trimethylsilyl)silyl) Group: A Fluoride Resistant, Photolabile Alcohol Protecting Group*, *Tetrahedron Lett.* 1997, 38, 6997-7000.
57. F. Michael A. Brook, Howard A. M. Ketelson, F. LaRonde and Robert H. Pelton, *Pt⁰ compounds bound in a silsesquioxane layer: active hydrosilation catalysts protected by the gel*, *Inorg. Chim. Acta* 1997, 264, 125-135, (invited manuscript).
56. F. Yeom, C.-K.; Dickson, J. M.; Brook, M. A. *A Characterization of PDMS Pervaporation Membranes for the Removal of Trace Organic from Water*, *Korean. J. Chem. Eng.* 1996, 13, 482-488.
55. F. Stephen Urquhart, Cássia C. Turci, Tolek Tyliszczak, Michael A. Brook and Adam P. Hitchcock, *Core Excitation Spectroscopy of Phenyl- and Methyl-Substituted Silanol, Disiloxane and Disilane Compounds: Evidence for π -Delocalization Across the Si-C_{Phenyl} Bond*, *Organometallics*, 1997, 16, 2080-2088.
54. C. Mark J. Stradiotto, Grant Crowe, Ralph Ruffolo and Michael A. Brook, *The Structure of 1-Styrylsilatrane*, *Acta Cryst.* 1997, C53, 637-639.
53. F. Mark Stradiotto, Suzie S. Rigby, Donald W. Hughes, Michael A. Brook, Alex D. Bain and Michael J. McGlinchey, *A Multidimensional NMR Study of Tris(indenyl)methylsilane: Molecular Dynamics Mapped onto a Hypercube*, *Organometallics*, 1996, 15, 5645-5652.
52. F. Michael A. Brook, Bjørn Ramacher, Carol Dallaire, Hari K. Gupta, Dagmar Ulbrich and Ralph Ruffolo, *Comparing the Reactivity to Acids of Group 14 Tetrakis(alkynes) and Their Dicobalthexacarbonyl Complexes*, *Inorg. Chim. Acta*, 1996, 250, 49-57, invited manuscript.
51. F. Michael J. Roth, Michael A. Brook and Helen B. Penny, *Hydrosilane Cleavage Reactions Accelerated By Tartaric Acid and Dimethyl Sulfoxide*, *J. Organomet. Chem.*, 1996, 521, 65-74, invited manuscript dedicated to Robert Corriu.
50. F. Christopher Roos, Graham A. McGibbon and Michael A. Brook, *The Thermoysis of ϵ -Halodisilanes: An Attempt to Coerce Si=O Bond Formation Using Si-F Bond Formation*, *Can. J. Chem.* 1996, 74, 1470-1479.

- 28 -

49. C Michael A. Brook, Howard A. M. Ketelson, Robert H. Pelton, and Yew. M. Heng, *Surface Nucleation of Silica-Supported Platinum Nanoparticles*, *Chem. Mater.* 1996, 8, 2195-2199.
48. F Tomislav M. Stefanac, Michael A. Brook, and R. Stan, *The Radical Reactivity of Hydrovinylsilanes: Homooligomers*, *Macromolecules* 1996, 29, 4549-4555.
47. F Wan Zhang, John A. Stone, Michael A. Brook and Graham A. McGibbon, *Stabilization of Vinyl Cations by β -Silicon: A Quantitative Mass Spectrometric Study*, *J. Am. Chem. Soc.* 1996, 118, 5764-5771.
46. F Howard A. Ketelson, M. A. Brook and R. H. Pelton, *Colloidal Stability of Stöber Silica in Acetone-Water Mixtures*, *J. Colloid Interface Sci.* 1996, 179, 600-607.
45. F R. Pelton, Huining Xiao, Michael A. Brook and Archie Hamielec, *The flocculation of polystyrene latex with mixtures of poly(p-vinyl phenol) and poly(ethylene oxide)*, *Langmuir*, 1996, 12, 5756-5762.
44. F P.L. Heritage, L. M. Loomes, J. Jiang, M.A. Brook, B.J. Underdown and M.R. McDermott, *Novel Polymer-Grafted Starch Microparticles for Mucosal Delivery of Vaccines*, *Immunology*, 1996, 88, 162-168.
43. F Howard A. Ketelson, M. A. Brook and R.H. Pelton, *Colloidal Stability of Stöber Silica in Acetone*, *Langmuir*, 1996, 12, 1134-1140.
42. F Michael A. Brook and Courtney Henry, *Competitive Acylation Of Arylstyrylsilanes: Controlling Silanucleophile Reactivity*, *Tetrahedron* 1996, 52, 861-868.
41. F Michael A. Brook, Thomas Sebastian, Peter Hülser, Ralf Jüschke, Stefan Wenzel, Jennifer A. Townsend and Patricia R. Falletta, *β -Trichlorosilylstryene Oligomers*, *Can. J. Chem.*, 1995, 73, 1794-1802.
40. F Michael A. Brook, Courtney Henry, Elizabeth Jefferson, Ralf Jüschke, Thomas Sebastian, Mirek Tomaszewski and Stefan Wenzel, *Electrophilic Additions to Styrylsilanes: The Effect of Changing the Ligands on Silicon*, issue dedicated to Raymond Calas, *Bull. Soc. Chim. Fr.* 1995, 132, 559-568, invited manuscript.
39. F H. A. M. Ketelson, Michael A. Brook, and Robert H. Pelton, *Colloidal Silica Bearing Hydrosilane Groups*, *Chem. Mater.* 1995, 7, 1376-1383.
38. F Howard A.M. Ketelson, Michael A. Brook and Robert H. Pelton, *Sterically stabilized silica colloids: Radical grafting of poly(methyl methacrylate) and Hydrosilylative grafting of silicones to Functionalized Silica*, *Polym. Adv. Technol.* 1995, 6, 335-344.
37. F Ralph Ruffolo, Andreas Decken, Luc Girard, Hari K. Gupta, Michael A. Brook and Michael J. McGlinchey, *Toward Metal-Stabilized Silylum Cations: An EHMO Study of $[(HC=C-SiH_2)Co_2(CO)_8]^+$ and X-ray Crystal Structures of $(Me_3C=CSiPh_2H)Mo_2(CO)_4Cp_2$ and $[(Me_3SiC=CSiMe_2)Co_2(CO)_8]_2$* , *Organometallics* 1994, 13, 4328-4335.
36. F Courtney Henry and Michael A. Brook, *Proton Additions to Silylstyrenes: Overcoming the Predilection for Protodesilylation*, *Tetrahedron*, 1994, 50, 11379-11390.
35. F Jianxiong Jiang, Michael A. Brook and J. M. Dickson, *A ^{29}Si NMR Study of the Solution Reactions Between Methyltrichlorosilane and*

- 29 -

- Octamethylcyclotetrasiloxane in the Presence of Triflic Acid, *Heteroatom Chemistry*, 1994, 5, 275-285.
34. F Courtney Henry and Michael A. Brook, *Electrophilic addition to styrylsilanes: Sequential carbon-carbon bond forming reactions*, *Inorg. Chim. Acta* 1994, 220, 145-154.
33. C Michael A. Brook, Henk Hiemstra and Grant Crowe, *Allyldimethylsilyl Triflate: A Self-Catalyzed Silyl Nucleophile*, *Can. J. Chem.*, 1994, 72, 264-267.
32. C Michael A. Brook, Daniel Chau, Michael J. Roth, Weifeng Yu and Helen Penny, *The Surprising Reactivity of Alkoxyhydrosilanes Towards α -Hydroxy Carboxylic Acids*, *Organometallics*, 1994, 13, 750-752.
31. F Carol Dallaire, Michael A. Brook, Alex D. Bain, Christopher S. Frampton and James F. Britten, *Tetrakis[(Trimethylsilyl)Ethynyl] Group 14 Metal Derivatives: An Examination Of The Electronic Interaction Between Two Group 14 Metals Connected By An Acetylene Wire*, *Can. J. Chem.* 1993 71, 1676-1683.
30. F Eric C. Roos, M. Carmina López, Michael A. Brook, Henk Hiemstra and W. Nico Speckamp, *Synthesis of α -Substituted α -Amino Acids via Cationic Intermediates*, *J. Org. Chem.* 1993, 58, 3259-3268.
29. F Carol Dallaire and Michael A. Brook, *The β -Effect with Vinyl Cations: A Kinetic Study of the Protiodemetalation of Silyl, Germinal and Stannyl Alkynes*, *Organometallics* 1993, 12, 2332-2338.
28. N Michael A. Brook, Pankaj Modi and James M. Dickson, *Silicon Functionalized Styrene Polymers*, *Macromolecules* 1993, 26, 2624-2627.
27. F Michael A. Brook, Courtney Henry, Ralf Jueschke and Pankaj Modi, *Balancing Leaving Group Ability and the β -Effect: Exploring the Synthetic Utility of Chlorosilyl Groups*, *Synlett* 1993, 2, 97-104.
26. C Graham A. McGibbon, Michael A. Brook and Johan K. Terlouw, *The Gas Phase Determination of the Stabilization Energy for α - and β -Silyl Substituents on Vinyl Cations by Mass Spectrometry*, *J. Chem. Soc., Chem. Commun.* 1992, 360-362.
25. F Robert H. Pelton, Andrea Osterroth and Michael A. Brook, *Silicone Stabilized Poly(methyl methacrylate) Nonaqueous Latex. 2 Flocculation By Degradation of the Steric Layer*, *J. Colloid Interface Sci.* 1991, 147, 523-530.
24. C Michael A. Brook, Thomas Sebastian, Ralf Jueschke and Carol Dallaire, *The Diastereoselective Addition of Carbon Electrophiles to Styrylsilanes: The Dimerization of β -E-Halosilylstyrenes*, *J. Org. Chem.* 1991, 56, 2273-2274.
23. C Michael A. Brook and Carol Dallaire, *Vinyl Cations Stabilized by Silyl, Germinal and Stannyl Groups: An Examination of the β -Effect*, *Organometallics* 1990, 9, 2873-2875.
22. F Michael A. Brook and Axel Neuy, *The β -Effect: Changing the Ligands on Silicon*, *J. Org. Chem.* 1990, 55, 3609-3616.
21. F Robert H. Pelton, Andrea Osterroth and Michael A. Brook, *Silicone Stabilized Poly(methyl methacrylate) Nonaqueous Latexes*, *J. Colloid Interface Sci.* 1990, 137, 120-127.

- 30 -

20. F Albert Elmer and Michael A. Brook, Draw2D, Draw3D: MOPAC 2- and 3-Dimensional Graphical Output Written Using the PHIGS Graphics Standard, *Tetrahedron Computer Method*. 1990, 2, 223-232.
19. C Michael A. Brook, Peter Hülser and Thomas Sebastian, *Oligo(trimethylsilyl)styrenes: Highly Functionalized Silicone Precursors*, *Macromolecules* 1989, 22, 3814-3816.
18. C Michael A. Brook, Mahmud A. Hadi and Axel Neuy, *An Examination of the β-Effect in an Addition Reaction with Different Ligands on Silicon*, *J. Chem. Soc., Chem. Commun.* 1989, 957-958.
17. C Michael A. Brook, Christina H. Kremers, Thomas Sebastian and Weifeng Yu, A Novel Glycol-Silicone Polymer, *J. Poly. Sci., Polymer Lett.* 1989, 27, 229-234.
16. C Michael A. Brook, Romolo Faggiani, C.J.L. Lock and Dieter Seebach, *u,I-4a,5,6,7,8,8a-Hexahydro-4-phenyl-8a-(trimethylsiloxy)-4H-1,2-benzoxazine-2-oxide*, *Acta Cryst.* 1988, C44, 1981-1984.
15. C Pierre G. Potvin, Patrick C.C. Kwong and Michael A. Brook, *Solution Structures of Sharpless Epoxidation Catalysts*, *J. Chem. Soc., Chem. Commun.*, 1988, 773-775.
14. F Nick Henry Werstiuk, Michael A. Brook and Peter Hülser, *Thermolysis of Trimethylsilyl Esters: An Ultraviolet Photoelectron Study*, *Can. J. Chem.* 1988, 66, 1430-1439.
13. C Michael A. Brook and Jahangir, *The Activation of Imines to Attack by Grignard Reagents*, *Synth. Commun.* 1988, 18, 893-898.
12. F Jahangir, Michael A. Brook, David B. MacLean and Herbert H. Holland, *A New Route to the Indolopyridonaphthyridine Ring System: Synthesis of N-Benzyl-13b,14-dihydronaucréline and N-Benzyl-13b,14-dihydroaugustine*, *Tetrahedron* 1987, 43, 5761-5768.
11. F Jahangir, M.A. Brook, D.B. MacLean, and H. L. Holland, *8H-Isoquinol[2,1-b][2,7]naphthyridine-8-ones: synthesis of the Alangium alkaloids, alangimarine and alangimarine*, *Can. J. Chem.* 1987, 65, 2362-2368.
10. R Michael A. Brook, *The Nomenclature of Relative Stereochemistry: Choosing Between likes and preferences*, *J. Chem. Educ.* 1987, 64, 218-220.
9. C Jahangir, D.B. MacLean, M.A. Brook and H.L. Holland, *Activated Imines as Carbon Electrophiles: Applications in Alkaloid Synthesis*, *J. Chem. Soc., Chem. Commun.* 1986, 1608-1609.
8. F Michael A. Brook and Dieter Seebach, *Cyclic Nitronates from the Diastereoselective Addition of 1-Trimethylsilyloxyhexene to Nitroolefins. - Starting Materials for Stereoselective Henry Reactions and 1,3-Dipolar Cycloadditions*, *Can. J. Chem.* 1987, 65, 838-850.
7. C T.H. Chan and M.A. Brook, *INEPT-29Si NMR Study of a TiCl4-Mediated Reaction of an Enol Silyl Ether*, *Tetrahedron Lett.* 1985, 2943-2947.
6. C Dieter Seebach and Michael A. Brook, *Reversed Stereochemical Course of the Michael Addition of Cyclohexanone to β-Nitrostyrenes by Using 1-Triethylsilyloxyhexene /Dichlorodiisopropoxytitanium*, *Helv. Chim. Acta* 1985, 68, 319-324.

- 31 -

5. C S.D. Lee, Michael A. Brook and T.H. Chan, *Conversion of Primary Amides into Active Acylating Agents via Acylpyrroles*, *Tetrahedron Lett.* **1983**, 1569-1572.
4. F P. Brownbridge, T.H. Chan, M.A. Brook and G.J. Kang, *Chemistry of Silyl Enol Ethers. A General Synthesis of 3-Hydroxyhomophthalates and a Biomimetic Synthesis of Sclerin*, *Can. J. Chem.* **1983**, 61, 688-693.
3. C T. H. Chan, Michael A. Brook and T. Chaly, *A Simple Procedure for the Acetalization of Carbonyl Compounds*, *Synthesis* **1983**, 203-205.
2. C Michael A. Brook and T.H. Chan, *A Simple Procedure for the Esterification of Carboxylic Acids*, *Synthesis* **1983**, 201-203.
1. F M.A. Nazar, W.H. Rapson, M.A. Brook, S. May and J. Tarhanen, *Mutagenic Reaction Products of the Aqueous Chlorination of Catechol*, *Mutat. Res.* **1981**, 89, 45-55.

(d) Journal Abstracts

(e) Other, Including Proceedings of Meetings

9. F Zhang Zheng, Yang Chen, Richard J. Hodgson, Michael A. Brook* and John D. Brennan, *Macroporous Silica Monoliths Derived from Glyceroxysilanes; Controlling Gel Formation and Pore Structure*, *Macromol. Symp.* **2005**, 226, 253-261.
8. R Muxin Liu, Elodie Pacard, Amro M. Ragheb, Paul M. Zelisko and Michael A. Brook, *Stabilisation of Protein-Containing Water-in-Oil Emulsions*, *Cahiers de Formulation*, **2004**, 11, 152-162 (Developed from the conference, "Formulation des composés silicones et fluorés" presented at the Journées de formulation: Formulation des composés silicones et fluorés: Concurrence ou complémentarité Lyon, France 9, 10 décembre 2002), Lanteri, P.; Bordes, C., Eds., invited manuscript.
7. Amro Ragheb, Hong Chen, Meghan L. Marshall, Michael Hrynyk, Heather Sheardown and Michael A. Brook, *Controlling Protein Deposition at Silicone Elastomer Interfaces*, *Polym. Prep. (Amer. Chem. Soc., Div. Polym. Chem.)* **2004**, 45(1), 602-603.
6. C Paul M. Zelisko, Jill J. Coo-Ranger, and Michael A. Brook, *The Interaction of Proteins with Functionalized Silicones*, *Polym. Prep. (Amer. Chem. Soc., Div. Polym. Chem.)* **2004**, 45(1), 604-605.
5. C Jill J. Coo-Ranger, Paul M. Zelisko, Michael A. Brook, *Ionic silicone surfactants in water-in-silicone oil emulsions containing proteins*, *Polym. Prep. (Amer. Chem. Soc., Div. Polym. Chem.)* **2004**, 45(1), 674-675.
4. F Brook, Michael A.; Zelisko, Paul; Walsh, Meaghan. *Permeability of silicone - water interfaces in water-in-oil emulsions*. *Organosilicon Chemistry V: From Molecules to Materials*, [Scientific Contributions presented at the European Silicon Days], 1st, Munich, Germany, Sept., 2001 (2003), Meeting Date 2001, 606-611, invited manuscript.
3. F Paul Zelisko, Vasiliki Bartzoka and Michael A. Brook, *Exploiting Favorable Silicone-Protein Interactions: Stabilization Against Denaturation At Oil-Water Interfaces*, in *Synthesis and Properties of Silicones and Silicone-Modified*

- 32 -

Materials, Clarson, S. J.; Fitzgerald, J. J.; Owen, M. J.; Smith, S. D.; Van Dyke, M. E., Eds, ACS Symposium Series 838, 2003, Ch. 19, pp. 212-221, invited manuscript (ISBN 0-8412-3804-9).

2. C Paul M. Zelisko, and Michael A. Brook, *Modified silicones for the stabilisation of proteins and enzymes in emulsions: Potential Vaccine Delivery Systems*, *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)*, 2001, 42(2), 115-116.
1. N Michael A. Brook and Paul Zelisko, *Exploiting Silicone-Protein Interactions: Stabilization Against Denaturation At Interfaces*, *Polym. Prep. (Am. Chem. Soc., Div. Polym. Chem.)*, 2001, 42(1), 97-98.

Patents

Provisional (Note: Provisional Patents superceded by a full patent are not shown)

14. Brook, M. A.; Gonzaga, F.; Tian, H. *Chelating Silicon-Based Polymers*, US Provisional Patent Application (to McMaster University), In preparation.
13. Sheardown, H.; Brook, M. A.; Chen, H. *Biocompatible Silicone and Methods of Preparation*, US Provisional Patent Application (to McMaster University).
- Brook, Michael A.; Sheardown, Heather; Chen, Hong. *Biological molecule-reactive hydrophilic silicone surface*. PCT Int. Appl. (2005), 62 pp. CODEN: PIXXD2 WO 2005111116 A1 20051124 CAN 143:478680 AN 2005:1240882 CAPLUS
12. Sébe, G., Thompson, D. B.; Brook, M. A., *Silicone Hydrophobization of Polysaccharides*, US Provisional Patent Application (to McMaster University).

Full, Filed

11. Dong, H.; Brook, M.A.; Brennan, J.D. *Methods for Forming Macroporous Monolithic Methylsilsesquioxanes*. PCT and US patents filed April 29, 2005.
10. Besanger, T.R.; Hodgson, R.J.; Brook, M.A.; Brennan, J.D. *Methods for Substrate and Inhibitor Screening Using Enzyme-Reactor Chromatography/Tandem Mass Spectrometry*. PCT and US patents filed March 16, 2005.
9. Brennan, J.D.; Brook, M.A.; Besanger, T.R. *Method of Immobilizing Membrane-Associated Molecules*. Continuation in Part to Application 60/426,018, filed April 2, 2004.
8. Besanger, T.; Brook, M.A.; Brennan, J.D. *Method of Immobilizing of Membrane-Bound Proteins*. U.S. Patent Application No. 10/712,015 and PCT Patent application PCT/CA03/01757; filed November 14, 2003.
7. Zhang, Z.; Cruz-Aguado, J. A.; Hodgson, R. J.; Tleugabulova, D.; Brennan, J. D.; Brook, M. A. . U.S. Patent Application (Continuation in Part). Filed April 1, 2004.
6. Zhang, Z.; Chen, Y.; Brennan, J. D.; Brook, M. A. *Methods and Compounds for Controlling the Morphology and Shrinkage of Silica Derived from Polyol-Modified Silanes*. U.S. Patent Application and PCT Patent application PCT/CA03/01257; Filed August 23, 2003.
5. Brook, M.A.; Brennan, J.D.; Chen, Y. *Polyol-Modified Silanes as Precursors for Silica*. U.S. Patent Application No. 10/449,511 and PCT application PCT/CA03/00790; Filed May 31, 2003.

- 33 -

4. Ketelson, H.; Brook, M.A. *Cleaning formulation for Optical Surfaces*, U.S. patent appl. Ser. No. 60/207,187, 20020039984 Oct. 2000. and PCT appl. PCT/CA01/00742 Nov. 29 2001.

Granted

3. Stan, R. S.; Brook, M. A. *Chelating silicone polymers*, US Patent 6,566,322 (to McMaster University).
1. M. A. Brook, L. Loombs, P. Heritage, J. Jiang, M. McDermott, B. Underdown, *Microparticle Delivery System*, US Patent 5571531, Nov. 5, 1996.

Abandoned

2. Howard A. M. Ketelson, Michael A. Brook, and Robert H. Pelton, A Platinum Catalyst, Method of Making and Use of Thereof, US Provisional Patent Application: 60/025,365, Sept. 3, 1996, abandoned.

Not Peer Reviewed

(a) Books

- 1 M.A. Brook and B.E. McCarry, *Laboratory Safety Manual*, Department of Chemistry, McMaster University, McMaster University, 1986.

(b) Contributions to Books

(c) Journal Articles

(d) Journal Abstracts

(e) Other, Including Proceedings of Meetings

- 3 Book Review in Canadian Chemical News, 1997, 49 (6), 39, "Organosilicon Chemistry II: from molecules to materials," Auner, N.; Weis, J. Eds., VCH : Weinheim and NY, 1996.
- 2 Software Review in Canadian Chemical News, 1992, 44(1), 19-20 of ISIS/Draw from Molecular Design.
- 1 Book Review in Canadian Chemical News, 1987, 39(10) Nov., 31.9, of "Silanes, Surfaces and Interfaces, in Chemically Modified Surfaces, Vol. I, By Donald E. Leyden, Gordon and Breach, 1986.

Presentations at Meetings

Invited

16. Michael A. Brook, J. Guo, H. D. Sheardown, H. Chen, D. Chen, *Carbohydrate Modified Silicone Elastomers*, ISOS XIV International Organosilicon Symposium, Würzburg Germany, August 2005.
15. Michael A. Brook, *Protein and oligonucleotide compatible sol-gel preparation and controlled aggregation of primary silica particles*, IUPAC World Polymer Congress, Paris, July 2004.
14. Michael A. Brook, Hong Chen, and Heather Sheardown, *Protein Rejecting Silicone Elastomers for Scar Reduction in the Eye*, Emerging New Materials Research Day, Toronto, June 2003.
13. Michael A. Brook, Stefanie Mortimer, Cindy Liu and Paul Zelisko, *Formulating Emulsions Using Silicone-Protein Copolymers*, International Workshop on Silicon Containing Polymers ISPO 3 Troy, NY, 2003.

- 34 -

12. M. A. Brook, J. D. Brennan, D. Chen, H. Chen, Z. Zheng, P. Zelisko, S. Mortimer and A. Ragheb, *Harnessing Protein Activity at Silica and Silicone Interfaces*, 36th Organosilicon Symposium, Akron, May 2003.
11. Muxin Liu, Elodie Pacard, Amro Ragheb, Paul Zelisko et Michael A. Brook, *Emulsion de silicone eau dans huile : stabilisation par des protéines*, Journées de formulation: Formulation des composés silicones et fluorés: Concurrence ou complémentarité Lyon, France 9, 10 décembre 2002.
10. Michael A. Brook, Dan Chen, Kui Guo, Zhang Zheng, John Brennan, Hong Chen and Paul Zelisko, *Using silicon chemistry to stabilize proteins in silica*, XIIIth International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract A-28.
9. Michael. A. Brook, Vasiliki Bartzoka, Gladys Chan and Paul Zelisko, *Are Silicones Deleterious to Protein Structure and Function?*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract B-15.
8. M. A. Brook, R. S. Stan, B. Davies, V. Bartzoka. *Combining Silicones with Biopolymers*. XIIth International Symposium on Organosilicon Chemistry, Sendai, Japan, May 1999.
7. M. A. Brook and Frank J. LaRonde, *Chiral Extracoordinate Silanes: Catalytic, Enantioselective Reduction of Carbonyl Groups*, 32nd Organosilicon Symposium, Milwaukee, March 1999.
6. M. A. Brook, R. Z. Stan and A. Tseitlin, Progress in the Chemistry of Surface Compability, 5th International Conference on Woodfiber-Plastic Composites, Toronto, ON, May 1998, Abstract.
5. M. A. Brook, T. Kuhnen, M. J. McGlinchey, R. Ruffolo, M. Stradiotto and J. Urschey, *(Metal) Complex Solutions To Some Synthetic (Silicon) Problems*, ACS Meeting, Dallas, Apr. 1998, Kipping Symposium (J. Lambert, Awardee), Abstract 279.
4. M. A. Brook, Sonya Balduzzi, Vasiliki Bartzoka, Gang Hu, Frank LaRonde, Gilles Sèbe and Rodica Stan, *Modifying Biopolymers with Silanes and Silicones*, ACS Northeast Regional Meeting, Midland MI, May 1997, Abstract 143.
3. Michael A. Brook, David A. Valentini, Rodica Stan, Vasiliki Bartzoka and Gilles Sèbe, *Approches to the Dimensional Stabilization of Wood: Hydrophobization*, Design Industriel, Architecture et Rhéologie du Bois, Bordeaux, France, March 1997.
2. M. A. Brook, H. A. M. Ketelson, C. Gottardo and R. H. Pelton, *Particles in a Box: Hydrosilation Catalyzed by Platinum Nanoparticles Enmeshed in a Silsesquioxane Gel*, 9th International Organosilicon Conference, Montpellier, France, Sept. 1996, Abstract LD8.
1. M.A. Brook, H. Ketelson and R.H. Pelton, (Polymer Colloids Symposium), *Controlled Modification of Silica Surfaces: Polyolefin and Silicone Sterically Stabilized Colloids*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 253.

- 35 -

Contributed

a) Peer Reviewed

159. F. Gonzaga, M. A. Brook, *Structuring noble metals nanoparticles in multilayered silicone surfactants*, 89th Conference of The Canadian Society for Chemistry, Halifax NS, May 2006, Abstract.
158. Lucy Ye, Michael Brook, Robert Pelton, *Biotinylation of TiO₂ nanoparticles and their colloidal stability*, 92nd Annual Meeting Paperweek 2006, Montreal, QC, Canada, poster.
157. Lucy Ye, Michael Brook, Robert Pelton, *A Platform of Immobilization of Proteins on TiO₂ Nanoparticles*, 92nd Annual Meeting Paperweek 2006, Montreal, QC, Canada, oral presentation.
156. Lucy Ye, Michael Brook, Robert Pelton, *Biotinylation of TiO₂ Nanoparticles and Their Colloidal Stabilities* February 6~10, 2006, 55th Canadian Chemical Engineering Conference, Toronto, Canada.
155. Peter Kovarik, Thomas R. Covey, Richard J. Hodgson, Michael A. Brook and John D. Brennan*. *Compound Screening using Capillary Scale Frontal Affinity Chromatography/MALDI Tandem Mass Spectrometry*. 53rd American Society for Mass Spectrometry Conference, San Antonio, TX, 2005.
154. Gina Dimopoulos-Italiano1, Michael A. Brook, Amro M. Ragheb, M. Kirk Green. *LCMS Analysis of Squalene Derivatives using ESI with Post-Column Addition of Ag⁺* 53rd American Society for Mass Spectrometry Conference, San Antonio, TX, 2005.
153. R.J. Hodgson, T.R. Besanger, M.A. Brook and J.D. Brennan*. *Inhibitor Screening using Enzyme Reactor Chromatography/Tandem Mass Spectrometry*. 53rd American Society for Mass Spectrometry Conference, San Antonio, TX, 2005.
152. F. Gonzaga and M. A. Brook, *Polycarboxylate Chelating Silicone Amphiphiles*, ISOS XIV International Organosilicon Symposium, Würzburg Germany, August 2005.
151. D. B. Thompson and M. A. Brook, *Silicone Protected Carbohydrates*, ISOS XIV International Organosilicon Symposium, Würzburg Germany, August 2005.
150. Lu Ye, Robert Pelton, Michael Brook, Covalent attachment of biotin to TiO₂ nanoparticles, 79th ACS colloid and surface science symposium, Potsdam, New York, USA, June 13-15, 2005, Abstract No. 7-27.
149. Weian Zhao, Elodie Pacard, Carole Chaix, Christian Pichot and Michael A. Brook*, *Controlled Silica Nanoparticle Aggregates for Oligonucleotide Synthesis*, 38th Silicon Symposium, Boulder, Colorado, June 2005, Abstract; P17.
148. Gina Dimopoulos-Italiano; Michael A. Brook; Amro Ragheb; M. Kirk Green, *LCMS Analysis of Squalene Derivatives using ESI with Post-column Addition of Ag⁺*, 53rd ASMS Conference on Mass Spectrometry, June 5 - 9, 2005, San Antonio, Texas, Section ThP06, Poster Number: 102.
- 147 Gao, Y., Amarne, H., Brook, M. A., Sheardown, H. Bandage Contact Lenses: Silicon Oil for Interfacial Control EMK Meeting: Toronto, Canada, June, 2005.
146. Elodie Pacard, Michael A. Brook, Christian Pichot, Carole Chaix, Amro M. Ragheb, *Elaboration of silica/polymer hybrid support for oligonucleotide synthesis and biodiagnostics*, IUPAC World Polymer Congress, Paris, July 2004.

- 36 -

145. Scott L.E., Zelisko P.M., Brook M.A. *Heparin Entrapped in Water-in-Silicone Oil Emulsions: A Possible Delivery Vehicle for Oral Heparin*, 87th Canadian Chemistry Conference, London ON May 2004, Abstract 751.
144. Ragheb A.M., Hrynyk M., Brook* M.A. *The Use of Poly(ethylene glycol) to Stabilize Enzymes in Silicone Rubber*, 87th Canadian Chemistry Conference, London ON May 2004, Abstract 162.
143. John Brennan, Michael Brook, Xiaoming Zhao, Yang Chen, Richard Hodgson, Hong Long, Dina Tleugabulova, Zheng Zhang, Blaise N'Zemba, and Michael G. Organ, *New Advances in the Screening of Compound Mixtures*, Chemistry and Biology: Partners in Decoding the Genome, The National Institutes of Health, Bethesda, Maryland, March 15-16, 2004.
142. Chen, H.; Sheardown, H.; Brook, MA, Generic Modification Method for Creating Biocompatible Silicone Elastomers, International Conference and Workshop on Physical Chemistry of Bio-Interfaces, Barossa Valley, Australia, May 2004.
141. Paul M. Zelisko, Lauren E. Scott, and Michael A. Brook, The Delivery of Proteins from Water-in-Silicone Oil Emulsions, International Conference and Workshop on Physical Chemistry of Bio-Interfaces, Barossa Valley, Australia, May 2004.
140. Amro M. Ragheb, Stefanie A. Mortimer, Susan Jo, Michael Hrynyk and Michael A. Brook, Silicone rubber for drug delivery applications: The effect of poly(ethylene glycol) on the drug delivery process, International Conference and Workshop on Physical Chemistry of Bio-Interfaces, Barossa Valley, Australia, May 2004.
139. Zheng Zhang, Yang Chen, Dina Tleugabulova, John D. Brennan and Michael A. Brook, Immobilization of Proteins within Silica and Bioanalysis Applications of Protein Entrapped Silica Monolith, International Conference and Workshop on Physical Chemistry of Bio-Interfaces, Barossa Valley, Australia, May 2004.
138. Paul M. Zelisko, Jill J. Coo-Ranger, and Michael A. Brook, Water-in-Silicone Oil Emulsions as Delivery Vehicles for Proteinaceous Materials, International Conference and Workshop on Physical Chemistry of Bio-Interfaces, Barossa Valley, Australia, May 2004.
137. Chen, H, Brook, MA, Sheardown, H. *Protein-rejecting Silicone Surface Immobilization of Poly(ethylene oxide) by Covalent Bonds*, 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 653.
136. Brook, MA, Brennan, J, Zhang, Z, Chen, D, Gao, Y. *Proteins trapped in porous silica: Biomaterials Scaffolds*. 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 590.
135. Zhang, Z, Chen, Y, D'souza, R, Brennan, JD, and Brook, MA, *Biocompatible Macroporous Silica Monoliths with Entrapped Proteins*, 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 1323
134. Ragheb, AR, Hrynyk, M, Brook, MA, *Silicone-Lipase Composite: Affecting Protein-Silicone Interaction By Tailoring The Polymeric Structure*, 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 1748.
133. Amarie, H., Gao, Y., Guo, J., Chen, H., Sheardown, H., Brook, M. A. *Silicon Lenses for the Mitigation of Scarring in the Eye* MMO and EMK Meeting: Toronto, Canada, June, 2004.

- 37 -

132. Zelisko, PM, Ranger-Coo, J, and Brook, MA, *Water-in-Silicone Oil Emulsions as Delivery Vehicles for Proteinaceous Materials*, 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 835.
131. Chen, H, Brook, MA, Sheardown, H, *Controlled Morphology PEO-Silicone Composites Have Protein Rejecting Surfaces*, 7th International Biomaterials Conference, Sydney, Australia, May 2004, Abstract 22.
130. Brook, M. A. *Breast Implant Lawsuits – A Tempest in a C-Cup?* Rotary Lunchtime Lectures, Feb. 2004, Hamilton.
129. Amro Ragheb, Hong Chen, Meghan L. Marshall, Michael Hrynyk, Heather Sheardown and Michael A. Brook, *Controlling Protein Deposition at Silicone Elastomer Interfaces*, 227th ACS National Meeting, Anaheim, CA, March, 2004.
128. Jill J. Coo-Ranger, Paul M. Zelisko, Michael A. Brook, *Ionic silicone surfactants in water-in-silicone oil emulsions containing proteins*, 227th ACS National Meeting, Anaheim, CA, March, 2004, Abstract POL 510.
127. Paul M. Zelisko, Jill J. Coo-Ranger, and Michael A. Brook, *The Interaction of Proteins with Functionalized Silicones*, 227th ACS National Meeting, Anaheim, CA, March 2004, Abstract POL 391.
126. Michael A. Brook, Paul Zelisko, Hong Chen, Muxin Liu, Amro Ragheb, Michael Hrynyk, and Heather Sheardown, *Interfacial Control with Proteins at Silicone/Water Interfaces*, Polymerisation in Dispersed Media, PDM April 2004, Lyon, France, Abstact O5.5.
125. Elodie Pacard, Michael A. Brook, Amro M. Ragheb, Carole Chaix; and Christian Pichot, *Elaboration of Silica/polymer hybrid support for oligonucleotide synthesis and biodiagnostics*, Polymerisation in Dispersed Media, PDM April 2004, Lyon, France.
124. Yang Chen, Zheng Zhang, John D. Brennan, Michael A. Brook,* *A glycerol-derived silica precursor for the encapsulation of protein in porous silica monoliths*, XII International Workshop on Sol-Gel Science and Technology, Sydney, Australia, August 2003, Abstract 788.
123. Michael A. Brook,* Yang Chen, Kui Guo, Zheng Zhang, Wen Jin, Anil Deisingh and John D. Brennan*, *Sugar-Modified Silanes: Precursors for Silica Monoliths*, XII International Workshop on Sol-Gel Science and Technology, Sydney, Australia, August 2003, Abstract O-50.
122. Masaaki Amako, Michael A. Brook, *Ring Flipping Behavior of O(SiMe₂-η⁵-Indenyl)₂Fe complexes and Their Co-Polymerization with Silicones*, OM COS 12, Toronto, July 2003, Abstract.
121. Stefanie A. W. Mortimer, Paul M. Zelisko, and Michael A. Brook, *Protein Deposition On Modified Silica Surfaces*, 36th Organosilicon Symposium, Akron (won best student prize).
120. Paul M. Zelisko and Michael A. Brook, *The Properties Of Human Serum Albumin And Triethoxysilyl-Terminated Polydimethylsiloxane At The Interface Of Water-In-Silicone Oil Emulsions*, 36th Organosilicon Symposium, Akron
119. S. A. W. Mortimer, P. M. Zelisko, M. A. Brook, *A Novel Approach to Amino Acid-Modified Silicones*, 2003 IUPAC Congress and 86th Conference of The

- 38 -

- Canadian Society for Chemistry, Ottawa ON, Aug. 2003, Abstract. (won best undergraduate student MSED poster).
118. P. M. Zelisko, M. A. Brook, *The Interaction of Proteins with Silicone Polymers Containing Hydrophilic Moieties*, 2003 IUPAC Congress and 86th Conference of The Canadian Society for Chemistry, Ottawa ON, Aug. 2003, Abstract.
 117. A. M. Ragheb, M. A. Brook, *The role of hydrophilic additives in affecting the internal hydrophobic environment of silicone rubber: effect of polyethylene glycol species on the enzymatic activity of lipase C. rugosa entrapped in silicone composite*, 2003 IUPAC Congress and 86th Conference of The Canadian Society for Chemistry, Ottawa ON, Aug. 2003, Abstract. (Won 1 of 3 best graduate students posters).
 116. Hong Chen, Michael A. Brook and Heather Sheardown, *A New Approach to PEO-Modified Silicone Rubber: Passivation of Silicone Surfaces for Protein Rejection and Cell Growth*, 29th Annual Biomaterials Society Meeting, Reno Nevada, May 2003, Abstract.
 115. Zheng Zhang, Michael A. Brook, *The Biporous Structure of Monolithic Silica Columns Containing Entrapped Proteins*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P1-60.
 114. Paul M. Zelisko and Michael A. Brook, *The Interaction of Proteins and Silicones at Emulsion Interfaces: Analysis of Protein and Emulsion Stability*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P1-54.
 113. Amro Ragheb and Michael A. Brook, *Oxidizable Coupling Agents: Introduction of Surface Functionality*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P1-58.
 112. Hong Chen, Michael A. Brook, and Heather D. Sheardown, *An Investigation of the Surface Properties and Biocompatibility of Polyethylene Oxide-Modified Silicone Rubber*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P1-53.
 111. Elodie Pacard, Hong Chen, Michael A. Brook, and Carol Chaix, *Compatibilization of Silica Surfaces For Proteins*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P2-49.
 110. Cindy M. Liu, Paul Zelisko and Michael A. Brook, *Protein-Silicone Conjugates: Surface Activity as a Guide to Utility as Biodegradable Surfactants*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P2-29.
 109. Yang Chen and Michael A. Brook, *Syntheses of Sugar-Based Coupling Agents and their Use in Preparing Protein-Friendly Silica Surfaces*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P1-57.
 108. Masaaki Amako and Michael A. Brook, *Transition Metal-Containing Silicones From Disiloxane Compounds*, International Symposium on Organosilicon Chemistry, Guanajuato, Mexico, August 2002, Abstract P2-23.

- 39 -

107. Li, G.; LaRonde, F. J.; Brook, M. A. *Stereoselective reduction of ketones with triethoxysilane catalyzed by C₂-symmetric titanium complexes*, 224th ACS Meeting, Boston, August 2002, Abstract ORGN 509
106. M. A. Brook, V. Bartzoka, P. Zelisko, M. Walsh *Silicone-Protein Copolymers: Controlling Interfacial and Protein Stabilization*, 1st European Silicon Days, Munich, 2001 Abstract B11.
105. Brook, M. A., Laronde, F. J., Ragheb, A., *Controlling Silica Surfaces Using Responsive Coupling Agents*, Silica 2001, Mulhouse, France, Sept. 2001.
104. Mohamed, M.; Brook, M. A. *Synthesis of α-Allylsilane-Amino Acids and Their Reactions With Aromatic Acetals*, 212th ACS Meeting, Chicago, August 2001, Abstract ORGN 457.
103. Paul M. Zelisko, and Michael A. Brook, *Modified silicones for the stabilisation of proteins and enzymes in emulsions: Potential Vaccine Delivery Systems*, 212th ACS Meeting, Chicago, August 2001, Abstract POLY 403.
102. Brook, M. A., Zelisko, P. and Bartzoka, V. *Silicone-Protein Copolymers: Controlling Interfacial and Protein Stabilization*, International Workshop on Silicon Containing Polymers ISPO 2001, University of Kent at Canterbury, UK, June 2001, Abstract 57.
101. Paul Zelisko and Michael A. Brook, *Delivery of Proteinaceous Materials from Silicone Protected Microparticles and Water-in-Silicone Oil Emulsions*, Controlled Release Society, San Diego, June 2001, Abstract 6194.
100. Mustafa Mohamed and Michael. A. Brook, 84th Canadian Society for Chemistry Conference, Montreal, 2001, Abstract 1206.
99. Amro Ragheb and Michael. A. Brook, *The Role of Light in the Fouling of Wastewater UV-Disinfection*, 84th Canadian Society for Chemistry Conference, Montreal, 2001, Abstract 693.
98. Zelisko, PM; Flora, K; Brook, MA; Brennan, JD., *The Interaction of Silicone and Human Serum Albumin: Stabilisation Against Denaturation at the Interface*, 84th Canadian Society for Chemistry Conference, Montreal 2001, Abstract 1163.
97. Mustafa Mohamed and Michael. A. Brook, *C₂-Symmetric Lewis Acids: Enantioselective Reduction Of Carbonyl Groups*, 34th Organosilicon Symposium, White Plains, NY, May 2001, Abstract C-8.
96. Amro Ragheb and Michael. A. Brook, *An Attempt To Use Oxidizable Silane Coupling Agents To Mitigate Fouling of Quartz Surfaces*, 34th Organosilicon Symposium, White Plains, NY, May 2001, Abstract B-22.
95. Paul Zelisko and Michael. A. Brook, *Proteins and Enzymes at the Interface of Water-in-Silicone Oil Emulsions*, 34th Organosilicon Symposium, White Plains, NY, May 2001, Abstract A-10.
94. Brook, M. A.; Zelisko, P. *Exploiting Silicone-Protein Interactions: Stabilization Against Protein Denaturation at Interfaces*, 211th ACS Meeting, San Diego, April 2001, Abstract Poly181.
93. Brook, M. A.; Ragheb, A. *Oxidizable Coupling Agents: Introduction of Surface Functionality*, Adhesion Society Conf., Williamsburg, VA, Feb. 2001, Abstract 373.

- 40 -

92. Zelisko, P.; Brook, M. A. 20th Conference of the Canadian Biomaterials Society, *Water-In-Silicone Oil Emulsions in the Oral Delivery and Storage of Proteins and Enzymes*, Hamilton, August 2000.
91. Vasiliki Bartzoka and Michael A. Brook, Stable Silicone-Protein Emulsions: New Routes to Topical Delivery of Proteins, Society of Cosmetic Chemists Conference, Toronto, ON, May 2000.
90. Frank J. LaRonde and Michael. A. Brook, *C₂-Symmetric Lewis Acids: Enantioselective Reduction Of Carbonyl Groups*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract B-17.
89. Frank J. LaRonde and Michael. A. Brook, *Enantioselective Reduction Using Extracoordinate Silicon*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-31.
88. Mustafa Mohamed and Michael A. Brook, *Photolyses Of Tris(trimethylsilyl)Silane And Tris(trimethylsilyl)Silylethers: Trapping Of Silyl Radicals And Silylenes*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-34.
87. Mustafa Mohamed and Michael A. Brook, *Synthesis Of Allylsilane-Containing Amino Acids Via The Claisen Rearrangement*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-33.
86. Amro M. Ragheb, Michael A. Brook, *Squalene-Polysiloxane Cross Linked Polymer*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-35.
85. Ahmed H. Alzamly and Michael. A. Brook, *Thermoplastic Silicone Elastomers*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-36.
84. Paul Zelisko and Michael. A. Brook, *Enhanced Stability Of Alpha-Chymotrypsin And Alkaline Phosphatase Entrapped In Water-In-Silicone Oil Emulsions*, 33rd Organosilicon Symposium, Saginaw MI, April 2000, Abstract PB-32.
83. V. Bartzoka, M. A. Brook, *Protein-Silicone Synergies at Liquid-Liquid Interfaces*, Gordon Research Conference on Polymer Colloids, Tilton NH, July 1999, Abstract 42.
82. Sonya Balduzzi and M. A. Brook, Stereoselective carbon-carbon bond formation via cobalt-complexed alkynes, 82nd Canadian Society for Chemistry Conference, Toronto, June 1999, Abstract 666.
81. Frank J. LaRonde; Michael A. Brook, *Stereoselective Reduction of Ketones by Histidine: Alkoxy silane Complexes*, 82nd Canadian Society for Chemistry Conference, Toronto, June 1999, Abstract 684.
80. M. Mustafa and Michael A. Brook, *Application of the Claisen Rearrangement to the Synthesis of Amino Acid-Modified Allylsilanes*, 82nd Canadian Society for Chemistry Conference, Toronto, June 1999, Abstract 923.
79. D. Alberico, M. A. Brook, *Thermally Reversible Siloxane Elastomer*, 82nd Canadian Society for Chemistry Conference, Toronto, June 1999, Abstract Number: 18 (undergrad).
78. M. Mustafa and Michael A. Brook, *Synthesis of Allylsilanes via Ester Enolate Claisen Rearrangement of Vinylsilane-Modified Amino Acids*, Quebec and Ontario Minisymposium on Biological and Organic Chemistry, Brock University, Oct. 1998, Abstract 58.

- 41 -

77. F. J. Laronde and Michael A. Brook, *Reduction of Ketones with Hypervalent Trialkoxysilanes: Imidazole-Mediated Reduction of Carbonyl Compounds*, Quebec and Ontario Minisymposium on Biological and Organic Chemistry, Brock University, Oct. 1998, Abstract 57.
76. S. Balduzzi and Michael A. Brook, *Stereoselective Intramolecular Allyl Transfer*, Quebec and Ontario Minisymposium on Biological and Organic Chemistry, Brock University, Oct. 1998, Abstract 59.
75. Wayne W. Y. Lau, Brendan Hyland, James M. Dickson and Michael A. Brook, *Removal of Trace Organics from Water by Pervaporation using a composite hollow fiber Membrane with a Novel Silicone coating*, 4th National symposium on Progress in Materials Research, National University of Singapore, Mar., 1998, Proceedings 546-549.
74. F. Laronde and Michael A. Brook, *Reduction of Ketones With Hypervalent Trialkoxysilanes: Imidazole Mediated Reduction Of Carbonyl Compounds*, Fifth International Conference on Heteroatom Chemistry, London Ont., July 1998, Abstract.
73. M. Mustafa and Michael A. Brook, *Application Of The Claisen Rearrangement To The Synthesis Of Allylsilane-Modified Amino Acids*, Fifth International Conference on Heteroatom Chemistry, London Ont., July 1998
72. V. Bartzoka and Michael A. Brook, *Protein-Silicone Interactions at Liquid/Liquid Interfaces*, 72nd ACS Colloid and Surface Science Symposium, Penn. State, Pennsylvania, June 1998, Abstract 59.
71. F. Laronde and Michael A. Brook, *Diels-Alder Coupling Agents:Reversible Modification of Silica Surfaces*, 31st Organosilicon Symposium, New Orleans, May 1998, Abstract.
70. R. Stan and Michael A. Brook, *Polysiloxane Polymers Containing Nitrilotriacetic Acid Chelating Groups*, 31st Organosilicon Symposium, New Orleans, May 1998, Abstract.
69. J. Jiang, V. Bartzoka, D. Valentini and Michael A. Brook, *Surface Hydrophobization of Hydrophilic Biopolymers Using Silanes and Silicones*, Polymer Colloids Gordon Conference, Tilton, NH, July 1997.
68. Ruffolo, R., Stradiotto, M., Kuhnen, T., McGlinchey, M. J., Brook, M. A., *Molecular Lego: Building Blocks For Inorganometallic Polymers*, 80th Canadian Society for Chemistry Conference, Windsor, June 1997, Abstract.
67. Stradiotto, M., Rigby, S., Brook, M. A., McGlinchey, M. J., *Stereochemically Non-Rigid Poly(indenyl)silanes: A Synthetic, Multidimensional NMR and X-ray Crystallographic Study*, 80th Canadian Society for Chemistry Conference, Windsor, June 1997, Abstract.
66. Ralph Ruffolo, *Allylsilanes as Possible Precursors to Metal-Stabilised Silicon Cations*, 30th Organosilicon Symposium, London, Ont., May 1997, Abstract.
65. Gilles Sèbe, *Hydrophobisation of Pine Wood Surfaces by Grafting Polysiloxanes*, 30th Organosilicon Symposium, London, Ont., May 1997, Abstract.
64. Gang Hu, *Novel Polysiloxane Polymers Modified with Amino Acids*, 30th Organosilicon Symposium, London, Ont., May 1997, Abstract.

- 42 -

63. Mustafa Mohamed, *Photochemistry of Tris(trimethylsilyl)silane*, 30th Organosilicon Symposium, London, Ont., May 1997, Abstract.
62. Urguhart S.G., Hitchcock A.P., Brook M.A., Turci C.C., Denk M., π -Delocalization in Organosilanes: A Core Excitation Spectroscopy Investigation, 80th Canadian Society for Chemistry Conference, Windsor, June 1997, Abstract.
61. Michael A. Brook, S. Balduzzi, V. Bartzoka, G. Hu, F. LaRonde, G. Sèbe and R. Stan, *Modifying Biopolymers with Silanes and Silicones*, 4th International Conference on Woodfiber-Plastic Composites, Madison, WI, May 1997, Abstract.
60. Gilles Sèbe and Michael A. Brook, *Hydrophobisation of Pine Wood Surfaces by Grafting Polysiloxanes*, 4th International Conference on Woodfiber-Plastic Composites, Madison, WI, May 1997, Abstract.
59. H. A. Ketelson, Y. M. Heng, M. A. Brook and R. Pelton, *Application of Microscopy Imaging and Analysis in the Characterization of a Model Colloidal Silica System*, 1996 Microscopy and Microanalysis Conference, Minneapolis, Minn., Aug., 1996.
58. R. Ruffolo, M. A. Brook and M. J. McGlinchey, *Towards the Stabilization of Silicon Cations*, 9th International Organosilicon Conference, Montpellier, France, Sept. 1996, Abstract OB21.
57. T. Kuhnhen, R. Ruffolo, M. Stradiotto, M. A. Brook and M. J. McGlinchey, *Molecular Lego: Building Blocks for Inorganometallic Polymers*, 9th International Organosilicon Conference, Montpellier, France, Sept. 1996, Abstract PB24.
56. V. Bartzoka, M. A. Brook M. R. McDermott, *Silicone-Protein Absorption*, 9th International Organosilicon Conference, Montpellier, France, Sept. 1996, Abstract PB23.
55. V. Bartzoka, M. A. Brook, M. R. McDermott, *Protein-Silicone Interactions at a Solid-Liquid Interface*, 212th ACS Meeting, Orlando, Florida, Aug. 1996, Abstract COLL-39.
54. H. A. M. Ketelson, R.H. Pelton and M.A. Brook, *Surface Properties of Hydrosilane-Modified Silica Colloids*, 212th ACS Meeting, Orlando, Florida, Aug. 1996, Abstract COLL-202.
53. H. A. M. Ketelson, M.A. Brook and R.H. Pelton, *Preparation of Organo-Platinum nanoparticles Supported on Silica Spheres*, 70th ACS Colloid and Surface Symposium, Clarkson University, Potsdam, NY, June 1996, Abstract 43.
52. V. Bartzoka, M. A. Brook, D. Valentini and M. R. McDermott, *Surface Interactions between Proteins and Silicon Polymers: Physical and Covalent Adhesion*, 70th ACS Colloid and Surface Symposium, Potsdam NY, June 1996, Abstract 147.
51. Robert Pelton, Huining Xiao, Michael A. Brook and Archie Hamielec, "The flocculation of polystyrene latex with mixtures of poly(p-vinyl phenol) and poly(ethylene oxide)", Paper Chemistry and Coating, Ottawa, June (1996).
50. Rodica Stan and Michael A. Brook, *Wood-Polyethylene Composite Materials*, 3rd International Conference on Woodfiber-Plastic Composites, Toronto, May 1996, Abstract.

- 43 -

49. Thomas Kuhnen, R. Ruffolo, M. Stradiotto, Michael A. Brook and Michael A. McGlinchey, *Molecular Lego: Building Blocks for Inorganometallic Polymers*, 29th Organosilicon Symposium, Evanston, Ill., Apr. 1996, Abstract P-5.
48. Vasiliki Bartzoka, Michael A. Brook and David Valentini, *Silicon-based Coupling Agents for the Compatibilization of Hydrophobic and Hydrophilic Polymers*, 29th Organosilicon Symposium, Evanston, Ill., Apr. 1996, Abstract P-23.
47. Michael A. Brook, Rodica S. Stan and David Valentini, *Silicone-Protein-Starch Adsorption*, 29th Organosilicon Symposium, Evanston, Ill., Apr. 1996, Abstract P-23.
46. Mark Stradiotto, Suzie Rigby, Don Hughes, Alex Bain, Michael A. Brook and Michael A. McGlinchey, *A Multi-Dimensional NMR Study on the Fluxional Behaviour of Tris(indenyl)methylsilane: Molecular Dynamics Mapped Onto A Hypercube*, 29th Organosilicon Symposium, Evanston, Ill., Apr. 1996, Abstract P-5.
45. F. David Bayles and Michael A. Brook, *Understanding the α - and β -Silyl Cation Effect*, 29th Organosilicon Symposium, Evanston, Ill., Apr. 1996, Abstract P-7.
44. H. A. M. Ketelson, M.A. Brook and R.H. Pelton, *Colloidal Stability of Functionalized Silica Colloids in Polar Organic Media*, Gordon Research Conference on Polymer Colloids, Tilton, NH, 1995, Abstract P-45.
43. Michael A. Brook, H. A. M. Ketelson and R.H. Pelton, *Silicones on the Surface: Synthetic Approaches to Model Sterically Stabilized Colloidal Systems*, Gordon Research Conference on Polymer Colloids, 1995, Abstract P-46.
42. Michael A. Brook, Vassiliki Bartzoka, Jason R. Bernais and David A. Valentini, *Silicone-Biopolymer Interactions: Physical versus Covalent Adhesion*, Associating Polymers Conference, Loen, Norway, June 1995, Abstract P-7.
41. F. David Bayles and Michael A. Brook, *α and β -Silyl Carbenium Ions*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 286.
40. David A. Valentini, Michael A. Brook, Vassiliki Bartzoka and Mark R. McDermott, *Approaches to Grafting Silicones to Cellulose and Starch*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 686.
39. Vassiliki Bartzoka, Michael A. Brook, David A. Valentini and Mark R. McDermott, *Surface Interactions Between Proteins and Silicone Polymers: Physical and Covalent Adhesion*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 687.
38. Jianxiong Jiang, Michael A. Brook and Mark R. McDermott, *Silicone Grafted Starch Microspheres: Approaches to the Delivery of Bioactive Polymers*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 688.
37. H. A. M. Ketelson, M.A. Brook and R.H. Pelton, *Colloidal Stability of Functionalized Silica Colloids in Polar Organic Media*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 254.
36. Ralph Ruffolo, Michael A. Brook and Michael J. McGlinchey, *Towards the Stabilization of Silenes on Bimetallic Clusters*, 78th Canadian Society for Chemistry Conference, Guelph, 1995, Abstract 853.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.